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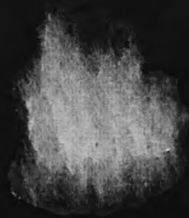
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THE

INDIGESTIONS;

OR

DISEASES OF THE DIGESTIVE ORGANS FUNCTIONALLY TREATED.

BY

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P R E F A C E .

IN 1856 I published a small volume on the same subject that I am now again taking up. It has been a good while out of print, for I was not content with it enough to sanction a reproduction in the same shape. But I have always intended to handle it again some time or another. During the last year or so I have been looking over my old notes of cases, and it struck me that it would be interesting to pick out such as bore upon indigestion, to classify them according to the points they illustrated, and see how far they upheld or overthrew my previous views. Then linking them together, after the fashion of a clinical teacher, with a running commentary, I made them tell their own tale, and added such observations as either occurred to me at the time I had the patients under my eye or have flowed from after experience. So grew up, not the new edition I had thought of, but what consistency bids me call a new work. It has therefore a new title, pointing to the different aspect in which the subject is viewed. In the former work it was anatomically, here it is functionally treated.

So pleasant has been the holiday task thus

“.....to the sessions of sweet silent thought
To summon up remembrance of things past,”

that I am fain to dwell upon it, and to try to lead others towards the same source of enjoyment by describing the way in which my store has been heaped up. For it is needless to say I did

not lean on my memory alone, or the number of trustworthy histories would have been few indeed.

The cases of those who are named as inmates of St. Mary's Hospital in the following pages are copied mainly from the diary kept by the clinical clerks. I have been always used to make this a chief source of teaching. The clerk was instructed to take notes with the sick person before him, and in his own words; and when he read them out at my visit, I added my observations, sometimes in the hospital case-books, sometimes in my own. These formed a groundwork on which to build my clinical lectures for the current week. They are irregular in wording, but preserve a fair record of the disease.

The details of private practice have been kept in a shorter and more mechanical way. I make it a rule, to which exceptions need be very few, to write all prescriptions and papers of advice in a copying-book, which makes a duplicate of them by means of transfer paper; and at the back of this transcript I write, usually with the patient before me, his symptoms and history, at least so far as to explain my reasons for the advice, before I go on to the next page. The periodical indexing of these sheets is an easy job for an hour of weariness; and the whole time consumed is so crumbled up that it is never missed, and neither business nor amusement feel themselves robbed.

Some people tell me they can make their notes of the day's work more fully and scientifically when it is over, and they quiet in their study. I do not like the plan so well. For one thing it interferes with the relaxation needed to keep the mind healthy and broad. That time belongs to rest—*datur hora quieti*—and should not be wasted on labor. An instinctive feeling of the truth of this causes a duty which is put off to such an opportunity to be put off often still further, often altogether. Again, unless an immediate note be made, the new and the strange in the day's experiences are stamped in the mind deeper than the common place, and so they are apt to take up more

than their fair share of room in the diary. While personal friendship, the social standing of the patient, and other considerations will sometimes blot out, sometimes unduly brighten our recollections of the case.

To these brethren in art then, as well as to others more emphatically who have hitherto failed to put by any written record at all of their acquired knowledge, I earnestly commend the method. Independently of the advantage to patients of being able to cast back to their antecedents, whenever you see them again at whatever interval, the selfish (not perhaps wholly selfish) satisfaction of living over again at will any portion of your professional life, is worth tenfold the trouble it gives. Its value to the public is directly proportioned to the value of the individual himself to the public; his experience is a simple fraction of himself.

I cannot expect the reading of my notes to be as agreeable to others as it is to me. Still the gracious way in which even rough clinical sketches are received in the shape of lectures, makes me hope that these studies, being of a quasi-clinical nature, may have some of the same favor shown them. A still higher reward would be that my witness to the pleasantness of the task should lead others, richer dowered than I am, to unbarn the harvest of their experience in its own living form, instead of merely the distilled essence of it in their opinions.

T. K. C.

22B, BROOK STREET, GROSVENOR SQUARE,
December, 1866.

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THE INDIGESTIONS.

CHAPTER I.

INTRODUCTION.

SECTION 1.—Principle intended to be conveyed in the title of the volume.—

Importance of the subject.—General peculiarities in diseases of the digestive viscera.—Value of attention to them in the management of remote diseases.

SECTION 2.—Divisions of the subject adopted in the future volume, and explanations of terms used.

SECTION I.

THE name "indigestion," or "dyspepsia," speaks to the mind of the physician of a very large class of morbid phenomena, various in their nature and appearing under a great variety of circumstances. There are those who would banish the term from our nosology; some because the outward manifestations are so diverse that it is impossible to bind them together in any symptomatic nomenclature; some because the parts of the body whose morbid states induce indigestion are so doubtful and numerous that it cannot be brought under any anatomical arrangement. It is quite true that a definition of it cannot be given according to the symptoms, and equally true that it cannot be called a lesion of one part or of any set of parts or tissues. When symptomatic phenomena are made the principle of classification, those attendant on this morbid state are so numerous and so discordant that they appear in every class; and if the organs that originate diseases are employed to give them names also, there are very few in the body which are not sometimes concerned in producing the disorder in question. Still, to the practitioner the name has a distinct meaning, and is a definite guide to action. No symptomatic, anatomical, or even chemical

considerations have prevailed over it, simply because it indicates a true method of classification, a natural linking of facts.

The link drawing into one class the morbid phenomena which are the subject-matter of this volume is *a partial defect in the necessary supply of that of which the body is built up, before it arrives at the medium of distribution.*

It is worth while to pause a little over this definition and on what it implies. The essence of "digestion" consists in absorption from a canal communicating with the external air into a closed system of tubes where is contained the nutritive fluid. Preparatory to this absorption is solution, aided by nerves and muscles; and the end of it is assimilation, or the conversion of the substances received into a like nature with the fluid they float in. Till this has been done they cannot be used for the nutrition of the body.

The blood is the floating capital lying between assimilation and nutrition—a treasury liable to continuous drafts from the latter, and requiring therefore constant supplies from the former to keep up its efficiency.

"Indigestion," then, or the incompleteness of digestion, is a defect anterior to constructive assimilation and to the blood, intervening between life and the new matter by which it seeks to renew itself.

This explains the fact mentioned before and familiar to us all, of indigestion affecting more or less all the functions of the body, and producing such an almost infinite variety of morbid phenomena as immediate or remote consequences. It perverts incipient life at its very source, and therefore perverts all its future manifestations.

It explains also why morbid anatomy here gives us less help than in any other classes of disease; why the degenerations of the viscera found in the dead body have less causal relation to the phenomena during life than in other cases. The changes seen by the morbid anatomist are those of solids exhibiting faulty processes essentially posterior to the blood, dependent on perverted nutrition, or mal-directed or arrested destructive assimilation.

Let my use of a negative word as a title be held to indicate my persistent belief in what I have made it my chief aim to urge in

all my teaching of medical theory for some years; namely, that all disease is for the physician essentially a deficiency of life, an absence of some fraction of the individual organization of force. I think all just views of disease must have a direct reference to health, just as the — must be preceded by an expressed or implied + for it to have an arithmetical power. A former work, out of which this present volume has grown, "Digestion and its Derangements," is divided into two parts with an equal number of corresponding chapters with similar headings, each as it were complementary to the other; the organ being exhibited by the first book in its typical state, by the second in its deviations: as both being in fact equally manifestations of physiological laws. My reasons for now omitting the first part of the subject are mainly a desire to diminish the size of the volume, and partly a feeling that recent special writers on physiology have placed in the hands of our countrymen most of the information which, when I wrote, existed only in foreign periodicals and theses. All that, and more, is now so easy of access in a readable form, that one may be excused from reprinting it.

But I am more than ever convinced, as years roll on, of the principle intended to be intimated, and perhaps only timidly shadowed forth, namely, that the organic laws of health and disease are one, that the essence of the latter is a deficiency of the vital action which characterizes the former, and that all successful medical treatment is a renewal of that vital action.

It is almost impossible to exaggerate the importance of the digestive viscera to the cure of disease. In every acute case, surgical or medical, the modification of the result produced by our efforts depends almost entirely on how far, how wisely, or how foolishly, these organs are watched over; whether they are well or ill treated, either by the scientific guidance of the skilled physiologist, or by the empirical rules of the routine practitioner, or according to the tradition of the nurse, or the instinct of the patient. Each of these may be in their fashion a useful guide, but the first is at least most capable of improvement by labor.

To an unhealthy state of the digestive viscera physiology enables us to trace, by steps more or less distinct, many chronic diseases not manifested in the organs themselves, but affecting

the whole body. If nothing but gout, tubercle, and degeneration were referable to it, that would be enough to engage our closest attention.

Whatever value we may attach to the evidence of the dependence of disease on the digestive organs, it is very clear that we look to them for relief from disease. Out of the six or seven hundred forms of medicines in habitual use, very few indeed are not occasionally offered to the stomach for acceptance, and an overwhelming majority of them are adapted for use only in this way. If we are still to employ this time-honored agency in our attempts to cure bodily ailments (and I see no threatening of a change at present), it is surely a matter of great interest to secure the active working condition of what our forefathers in anatomy picturesquely called the *portal*. It is waste toil to try and enter locked doors. A great advantage of paying special attention to the digestive organs is that, as a rule, they are more directly curable, and that by their means distant parts, otherwise out of our control, may be favorably influenced. The evil of neglecting them is obstinate disobedience of the body of the patient to any medicine administered.

When a sudden poison or paralysis has fallen on this gate of entrance, our hands are paralyzed too; the staffs we lean on fail us. What buckets of physic used to be poured through the half-dead bowels in our first epidemics of cholera! It might just as well have been thrown at once into the night-pan—its ultimate destination if the patients lived long enough.¹ Calomel pills, and calomel powders, and opium, and cayenne pepper, were a frequent constituent of cholera stools; and I verily believe that nine-tenths of what was swallowed in the stage of collapse followed the same fate, or the patients could not have outlived the poisonous doses which are recorded to have been given.

Watch a case of typh-fever, and see what immediate improvement follows the shedding of the dead epithelium with which the mucous membranes have been coated—a change which is

¹ I once found a drachm of ipecacuanha, which had been administered with other emetics three hours before death, safe in the cardia of a collapsed patient, in whom it had produced no vomiting, and had not been moved towards the pylorus.

ushered in by what is called the "cleaning of the tongue," but which foreshadows much more, in fact the cleaning of the whole intestinal tract. See how immediately on this the poisoned nervous system begins again to renew its life, and delirium ceases, as new nervous matter fit for duty is generated. Or watch another less fortunate case of the same malady, how as the tongue gets dirtier and dirtier and drier and browner each day, the weakness of the nervous and muscular system increases, and hope is more and more clouded over.

In both instances the difference between one case and another, between the patients who are a credit and a joy to us and the patients who continue to wring our heart with anxiety, mainly lies in the more or less vitality of the digestive mucous tract.

We must remember also that it is of no use to employ the best possible means of staying the morbid symptoms, unless the digestive organs assimilate sufficient material to replace that which is diseased, and to remove which we are bestowing our pains. Labor is wasted in clearing away abnormal structure, if new structure does not take its place. To that end the only path is to insure the assimilation of food. And to insure the assimilation of food, the stomach and its colleagues must be in working order. So that in point of fact the only fair trials of depletory measures must be connected with feeding, and those who would uphold the good fame of such expedients must be careful of their patient's digestion.

But even if diseases of the digestive organs had not so much influence as they possess on the duration of life, their extreme frequency would alone entitle them to attention. Unfortunately, it has had a contrary effect: medical men are apt to set down what is so common as inevitable. They neglect indigestion as unimportant, forgetful that though its removal may not perhaps in every case lengthen life, yet that it would at all events double its value.

The digestive tract has not the advantage enjoyed by the respiratory and by the upper part of the urinary apparatus, and other parts, of being double. An animal has two lungs, two kidneys, two hemispheres to the brain, two testicles or ovaries, two sides to his body generally; but only one stomach, and one intestinal canal. A further reason for great caution in preserv-

ing the integrity of the latter—there is less to spare for disease to affect. A deposit of tubercle (for instance) the size of a nut in the pulmonary tissue may be neither here nor there, may be never known by its effects. But put it in the peritoneum, or in Peyer's glands, and what a disturbance is produced! A man may lose a leg or an arm, and enjoy life very fairly afterwards; but let him lose the use of his œsophagus or his rectum, and where is he?

This singleness helps to explain the powerful influence which derangement of any one of its parts has not only over the whole tract, but over the whole body and mind. No chain is stronger than its weakest link, and an interruption of the function at one point is an interruption of the whole.

It also has a bearing of considerable importance on the treatment. It is extremely difficult to obtain that rest which is so essential in the management of disease. If you have pneumonia you may rest one lung and generally recover with the other; but if you have an equally acute inflammation of the œsophagus or stomach, you are in great danger, because they are in constant use.

Indigestion is a chronic disease. By that I mean that its natural path is straight on from bad to worse, unless from the interposition of some extraneous circumstances of accidental or designed origin foreign to the phenomena of the disease itself. Hence it is not difficult to test the action of a remedy upon it. A cautious observer may from a moderate number of well-considered cases come to a rational conclusion as to its value. While the tendency of acute disease, as I understand it, is to progress in a circle towards the recovery of health; each process, however dangerous and abnormal it may be, being a step towards the final arrival at that result, if only the patient's strength hold out.¹ Art, therefore, modifies it much less

¹ Dr. Pierre Petit, in the Preface to his "Commentary on Aretæus," compares acute diseases to race horses, which run round to the goal, unless they founder on the way.

The Greek primary division of diseases into "acute" and "chronic" is turned to such excellent therapeutical account by Aretæus, that the loss of his introduction, in which he probably defined acuteness, is much to be regretted. Galen misses the practical point, when he introduces the artificial element of time,

glaringly; a small experience is sure to lead to fallacies, and it is only on the numerical comparison of a large number of unprejudged cases that an opinion can be formed.

For this reason the failure of homœopathy in the cure of the digestive function is very conspicuous. More than a third of the private patients who come to me with dyspeptic ailments have tried this system, and confessedly tried it without advantage; though some of the same people still continue to think that in acute disease, scarlatina, catarrh, measles, rheumatic fever, pneumonia, and the like, their convalescence is brought about by homœopathic drugs.

My object in this chapter has been to point out the importance of a skilful management of the digestive organs in disease. I mean in disease generally, and not only that which specifically affects those organs alone. Let us not be deceived by the expression "merely symptomatic" sometimes applied to the derangements of digestion where organic changes exist. All parts and functions of the body are so knit together in one to form the great circle of life, that their comparative value to individual existence is more a question of time than of power. The failure of any one shortens the days more or less, and the immediate cause of death is as often "a mere symptom" as an organic change.

On stating in consultation an opinion that some viscus is chronically degenerated, one is often met by the remark, "Well, what is to be done?—we cannot cure that." Very likely not; then let us try and find something else which we can cure. In the great majority of patients this curable something may be found in functional impediments to the entrance of nutriment into the medium of assimilation; and when once nutriment can be got in, a cure is begun. Do not, therefore, let us give way to despair even after it has become certain that the principal viscus which gives a name to the disease is past remedies, and though little can be prescribed for the part mainly affected. It is seldom too late to try and administer to the failing organ the

pedantically limiting acuteness to a definite number of days. And several of our contemporaries have fallen into the same error; as if there could be any natural difference between an inflammation lasting twenty-one days and an inflammation lasting twenty-two days!

most potent of all remedies, the human blood of the patient himself, made healthy by the means adopted, and flowing in continuously by its natural channels.

I remember, when I was a physician to St. Mary's, talking in the wards to the pupils on this subject, as was my frequent habit, when we came to a new patient, an undergrown, undeveloped girl, the mitral orifice of whose heart was narrowed by rheumatic inflammation in childhood. On her being carried into the hospital, her face was like that of a corpse, and she could not stand without fainting. I presume no sane student expected to see means used for the dilatation of that vessel, whose contraction was the source of evil: despair was not an illogical conclusion from the diagnosis I dictated to the clinical clerk, and I was but little surprised to hear behind my back the remark, "This, at all events, is not much of a case for treatment." Yet observation of the functional state of the alimentary canal, indicated by the œdematous tongue and fauces, made me improve the opportunity by expressing an opinion that she would "walk home with color in her cheeks." A month afterwards I was able to say, at a clinical lecture on the case, "This she has been able to do, and the better-nourished heart now beats steadily and evenly; though its mitral orifice is as small as ever, if the ear and stethoscope are to be trusted."

And not once, but almost weekly, have I demonstrated to the same class, with respect to many a consumptive, how little it helped us to know that half of the upper lobe of each lung was filled with crude tubercles: pulmonary remedies had been of no benefit; but the reflection that the stomach was secreting an excess of mucus at the same time with the lungs, led to effectual means for the relief of both together.

In the following chapters I intend the sketches I give of morbid phenomena, and the simple classes into which I divide dyspepsias, to apply equally, whether they are alone, or whether they are united to obvious and more fatal organic changes.

SECTION II.

There is no pedantry in definitions when their object is to lead the writer and reader better to understand one another. So

I shall not shrink from a charge of over precision when, the first time I use in the following pages a word capable of various interpretation, I often stop to say what I mean by it. And at the present stage of the volume let us not grudge a few pages to dividing the subject, assigning it a nomenclature, and trying to turn that nomenclature to practical profit.

HEALTHY digestion is *quick, complete, and easy*. There can be no excess of it, for food cannot be too quickly and completely converted into chyme and taken into the blood, and there is no such thing as too much health and bodily comfort.

In ILL HEALTH digestion is impaired in one or more of these qualities—it becomes *slow, defective, and painful*.

We may use Greek words, and call the above-named erring qualities of the digestion *Bradypepsia*, *Apepsia*, and *Dyspepsia*; only let it be remembered, that making the old adjectives into new substantives adds no whit to knowledge—nay, unless care be taken, runs some risk of being a stumbling-block to its progress. For when we have in this way given a proper name with a capital letter, we are apt to think (like a naturalist with a new butterfly) that we have defined an individual and active motive power, instead of what is really the deficiency of a function. And thus we fall into the errors of our fathers, whose dangerous aims at destroying their abstract foe the “Disease,” instead of restoring the existing patient, led to so much bad practice in the generation now passing away. I shall generally use the English adjectives, but first I will say shortly what I mean by them in this connection.

By digestion being *slow* I mean that the act in some part of the alimentary canal is not completed by the time when the convenience of the individual requires that it should be completed. The stomach may retain so much of a former meal that it is not in a fit state to receive the new one which is needful for the sustenance of the body. Hence arises a want of the natural appetite and (when long continued) imperfect nutrition, anæmia, debility, &c. Or, if we attempt to force food too quickly on the unwilling stomach, we have chemical decomposition and defective digestion as consequences.

The average time by which the stomach should have naturally emptied itself varies in different healthy persons from two

to three hours. The intestines have extracted all that they are capable of absorbing in eight or nine hours; and the relics of complete digestion are ready for expulsion from a vigorous young person in twenty-four hours.

By *defective* digestion, I would imply that food capable of nourishing the body cannot do so from lack of certain changes which it should naturally undergo in the alimentary canal. It is passed from thence either unaltered or chemically decomposed. There are seen in the feces, either by the naked eye or the microscope, masses of starch, muscular fibre, fat, &c. I have several times had them brought to me, under the idea that they were worms, pieces of intestine, or other foreign bodies. Or else the products of their decay, consisting of various obnoxious gases and acids, are developed in quantity subversive of comfort.

Painful digestion may be both defective and slow; but, on the other hand, it not unfrequently also is complete and performed with sufficient quickness. All that it is intended to express by the word is its accompaniment, at some stage of its progress, by feelings varying from slight discomfort to absolute agony.

A few days ago a patient depicted to me very well the first-named sensations by saying, in answer to the question whether he had any pain, no, but that he felt where his stomach was, and knew where his food went to. And on the other hand I have heard the consequences of an ordinary meal described by a theologian, who ought to know, as "the tortures of the damned."

A very practical division of cases of indigestion is derived from the substance which is indigested, namely, which of the chief constituents of the diet, whether (1) *Starchy* and *Saccharine*, (2) *Albumenoid*, (3) *Fatty*, or (4) *Watery* food most exhibits the failure of the function. This is to be learnt partly from the patient, and partly from observation of the consequences which ensue to the alimentary mass. On it is grounded an important part of the treatment, namely, the dietetic; and as its indications are simple as well as valuable, it will come first for consideration.

A very essential step in the cure of indigestion consists in the

removal of its external causes, where these are removable. The following chapter, therefore, will be on "Social Habits," by which I mean causes dependent on the patient's will. There is one obvious practical distinction between these and other causes, namely, that the discovery of them is the true cure. You may bid a man cease from over-eating, over-fasting or smoking, but you cannot bid him cease from being poor or sorrowful, having tubercles in his lungs or an ulcer in his stomach.

The symptoms of these errors of the function may be divided according to the period of digestion at which they occur; some being exhibited before the alimentary mass has left the stomach; some during its way along the intestines; some after the passage of the ilio-cæcal nerve.

Now, remark, I avoid calling these phenomena diseases *of* the salivary or gastric glands, *of* the intestines, or *of* the colon. They are not so, and must not be treated as such. The discomforts felt soon after a meal, for example, may be due to organs far away from the stomach—to the uterus, to the kidneys, to the lungs—yet they must be called by the same names as when they are owing to anatomical changes in that part. So those occurring later often are traceable not to anything wrong in the duodenum, ilia, or colon, but to excess of gastric mucus or deficiency of pepsine.

Let it be understood then that when I speak of the *first* stage of digestion I mean before the food has passed the pylorus; by the *second* stage, its transit along the small intestines; by the *third* stage, all that takes place beyond the ilio-cæcal valve.

These phenomena almost always require separate treatment of themselves in addition to the general condition from which they originate. Indeed they are such a prominent part of the ailment that some writers, with a considerable show of reason, have divided indigestions according as one or other of them is the distinguishing features, as for instance M. Chomel does into "dyspepsie flatulente, dyspepsie gastralgique, dyspepsie boulimique, dyspepsie acide," &c. There is a certain amount of convenience in this in very marked cases: the worst of it is that many invalids exhibit several of the nomenclating symptoms all at once in equal degrees, and it is difficult to assign them

their place: while in some the dyspepsia (or rather the patient) is flatulent one day, gastralgic another; at one time has acidity, at another alkalinity in excess. I have thought it better, therefore, in this treatise to discuss each symptom, separately where it requires separate treatment, or in groups of several together, where the pathology and therapeutics admit of union. These will fill a few successive chapters.

Let it be understood that I speak of "Heart-burn," "Acidity," "Vomiting," &c., in these chapters as diseases independent of the cause from whence they arise; referring them indeed to that cause where it is known, but not placing them in a separate class where it is unknown.

A chapter will follow on some of the structural changes in the digestive organs themselves which impede their functions.

CHAPTER II.

INDIGESTION OF VARIOUS FOODS.

SECTION 1.—Defects of digestion as exhibited in Starchy and Saccharine food.

SECTION 2.—In Albumenoid food. SECTION 3.—In Fatty food. SECTION 4.—In Watery food. SECTION 5.—Treatment based on articles indigested. SECTION 6.—Treatment based on pathological condition.

SECTION I.

Indigestion of Starch and of Sugar, or Vegetable Food.

IN its original condition, either raw or when broken up by boiling, it does not appear that starch is capable of being absorbed by the alimentary canal. But on its first introduction to the mouth it meets with a fluid capable of converting it into one of the most absorbable of alimentary substances: indeed its change into sugar by the saliva may be fairly regarded as its ceasing to be a part of a plant and becoming a food. The reduction of it makes it into a complementary food duly represented in our type of a perfect diet, milk, by its peculiar form of saccharine matter "sugar of milk."

This metamorphosis begins immediately with the introduction of the morsel into the mouth, and is almost instantaneous in all parts with which it is brought into contact by the action of chewing. A good deal of the secretion is carried down into the stomach and continues its influence, though much retarded by the necessary acidity of the gastric juice. Should any of the starch granules have escaped rupture, or if it be eaten raw, the gastric juice (if strong) dissolves its albumenoid envelope, and sets some more amylaceous matter free. When the mass passes through the pylorus its acidity is neutralized, the action of the remaining saliva recommences on the starch yet unconverted or lately set free; and this action is reinforced by the pancreatic juice.

Of the sugar made, a very great part is absorbed in the mouth and gullet, sometimes all of it, for chemists have great difficulty in finding sugar in the stomach. A great part of the excess is converted into lactic acid to aid in the solution of flesh food, and the rest is taken up by the intestines.

For the reduction of starch, then, so as to bring it into a condition capable of digestion, it is necessary, first, that the salivary glands should secrete a sufficiency of fluid suited to convert it into sugar; and that not only at the moment of chewing, but that they should go on supplying it as long as any remains unconverted. Now, the salivary glands are more exposed to derangement by circumstances external to themselves than any organ not directly subject to the will. Temporary emotion affects them temporarily, and continued emotion chronically. We all know the dry mouth of the coward, the lover, the pitiful, and how the tongue clings to the roof when bad news is brought. We see too how for days, or even for weeks, bread eaten in sorrow can hardly be swallowed, so long it takes to moisten the morsel. Even in the healthiest person, bodily exertion parches the throat. Again, there is scarce any morbid condition that does not make itself felt in the fauces and seen in the tongue. Numerous analyses of the saliva in inflammatory, and in other affections which seem remote (such as uterine disease, phthisis, chlorosis, ague), show that the changes are marked enough to be detected by chemical examination.¹ These changes are all in the direction pointing to want of vitality; either the animal constituents are deficient, producing a watery saliva; or they are turned sour or putrid by decomposition. It was to be expected, therefore, that all defects of general vitality should give rise to them.

Besides the saliva, another digestive secretion practically comes into play in the solution of starch, to wit, the gastric juice. Cookery, even when of the best sort, rarely ruptures the whole of the amylaceous granules. Many escape, and in bad cookery the majority escape. They cannot, therefore, be affected by the saliva, till their albuminous envelope has been

¹ They may be found in Simon's "Chemistry," vol. ii. p. 9. Sydenham Society's Translation.

dissolved by the gastric juice. Then they may be converted into grape sugar, either rapidly by the saliva present, or more slowly by the pancreatic and other intestinal secretions.

The digestion of amylaceous and saccharine matters without inconvenience requires also the œsophagus to be throughout in a normal state; for, as before remarked, in health the greater part of the sugar made should be absorbed before it arrives at the stomach. In the lighter cases of dyspepsia, and in the temporary dyspepsia of excess, it is probably this power which principally fails; and the consequent symptoms probably arise from the presence of an excess of sugar thus passed on and apt to ferment in the intestinal canal.

The most essential part of the digestion of vegetable food is doubtless the osmosis of the sugar through the mucous coat of the alimentary canal.

Requiring so much that is so soon affected by extraneous circumstances, the digestion of starchy food is easily understood to suffer the first and the most commonly. Let us take as an example the simplest of all forms of deficient vitality, the consequences of an imperfect supply of that which vitality most requires for its manifestation, namely, albumenoid food and pleasurable emotion. How familiar is such a case as the following, upon which I fall on turning over only a very few leaves of my hospital note-book!

CASE I.—Caroline P—, aged 49, the widow of a musician, who formerly with her husband earned an easy subsistence by her profession, had been for a year living (as she called it) on needlework and looking on life with despair. On her admission to St. Mary's in April, 1860, she is described as a long-faced cachectic woman with sharp features, thin lips, and hair still brown. Her complaint was of pain and an intolerable feeling of weight at the epigastrium coming on an hour after food, flatulence either breaking off from the mouth or afterwards distending the abdomen. So that she almost dreaded to eat at all. But what was this food? Bread, potatoes, tea, sometimes a bit of bacon, hardly ever a bit of meat. But she had got not to care, eating at all was so distasteful to her. When ordered two meals of fresh meat daily, she could not indeed at first relish it without half a glass of port wine to wash it down. But that disrelish soon passed away. In a fortnight she had recovered her appetite, and moreover was able to take even vegetable food. In another week she was well enough to leave the hospital.

The abstinence inducing the anæmia and loss of digestive power was in this last case involuntary, and exactly such a history is possible of course only among the most downtrodden of human kind. But cases arise of voluntary abstinence producing a precisely different state of things.

CASE II.—In November, 1856, J. M. V—, a young mercantile man, aged 36, came to me for slight flatulence¹ and constipation. I gave him some myrrh and aloës pills to take occasionally, and saw no more of him then. He went on very well till 1860, when he was persuaded by some foolish friend to adopt a system of extreme abstinence, not that his health was to be called bad, but he wanted it to be better than good. The consequence was a relapse into a state much worse than the first. Three or four hours after eating, especially at night, flatulence, bursting upwards from the stomach, rolling about in suppressed thunder among the intestines, or passing off by the rectum, used to cause great inconvenience. And the absence of taste and smell in the evacuated air showed it to be the carbonic acid of decomposed amylaceous food. The nervous system was equally deranged. There was great wakefulness at night, and an inability to apply the mind to anything, which daily increased upon him, and prevented his attending to his business. I gave him some quinine, and desired him immediately to resume a full flesh diet. A week afterwards he said the flatulence and other symptoms were very much better, but the full dose of quinine made his head ache. He was ordered therefore to take only half a grain twice a day, to keep up his appetite to its work; and then he was able to engage again in business so as to think no more about his health.

The appetite is a very important part of the animal functions. The loss of it is familiarly known to be a consequence, but it is also often a cause of bad health.

CASE III.—In November, 1861, I admitted to St. Mary's a pleasing, well-grown girl of twenty, named Margaret C—. She was extremely pale, and so weak that she could hardly raise herself in bed; yet no organic disease or pathological state of any of the solid parts of the body could be discovered to account for her condition. She attributed her illness to the close smell of a workshop in which she had been employed, which spoiled her appetite, making her at first crave for unwholesome things, and reject what was set before her, afterwards destroying the desire for victuals altogether. She observed it did not seem to make the other apprentices ill, who were not so squeamish. Perhaps the accident of her having been more tenderly nurtured, and so more sensitive than her companions—perhaps the responsibility of being placed

¹ By "flatulence" I mean the superabundant collection of gas in the alimentary canal, whether it passes off upwards or downwards, or remains in the abdomen.

over them as forewoman—contributed to this result. The end was, that the loss of appetite induced anæmia, swelled ankles, amenorrhœa, and a certain amount of hysteria.¹ Then, though removed from the original cause of the disease, she took a disgust to all articles of food, complained that vegetables especially produced flatulence, and had to come into the hospital, she was so weakened. When put upon the diet of milk and liquor calcis every two hours, with a pint of beef-tea in divided doses daily, she digested it without inconvenience, but at first without relish. After two days she was able to take an egg, and after twelve days of gradual additions of this sort she arrived at the full allowance of mutton, porter, beef-tea, and milk. She lost her flatulence, and soon picked up her good looks.

For medicine she had iron three times a day, and pills of aloes and myrrh, at first every night, afterwards not so often.

In a clinical lecture given at the time I laid the condition of the patient to the door of the digestive canal. The circumstances to which I have traced the illness both act directly or indirectly on this part. In the first place the mental exertion involved in an untoward responsibility thrown on a conscientious person would lessen the life of the involuntary muscles which carry along the mass of food through the alimentary canal. We know well how long our food is in leaving the stomach if called to an important midwifery case just after a hearty meal; and several commercial and literary men have

¹ Dr. Reynolds remarks, in the Introduction to his "System of Medicine," that "by 'hysteria' is conveyed some meaning or none at all, and, when the former, a meaning as various in character as are the individuals who use the word." I take this opportunity of saying that by it I intend no reference to the womb (*ἰστέρα*), from which the Greeks derived the word in deference to a false theory of its origin; which unfortunate derivation often leads to a bad practice. By it I mean a peculiar state of the individual in which the emotions exercise a sway over the functions of mind and body usually subject to voluntary control, and produce spasmodic contractions and paralysis of involuntary muscles.

Its pathology must be sought for in that puzzling part of the circle of life which lies between spirit and matter. We know so little about the chain which connects the two, that its links are reckoned by us as few and short; we have no names for any of them; and in default of names for even the healthy functions, we must not expect an accurate nomenclature for their aberrations. So that the most we can do in trying to classify forms of hysteria is to trace how near their origin lies to one or other extremity of the series of vital actions which are interfered with; what relation their phenomena bear on the one hand to mind; and what on the other to body. We shall thus have set in a natural series the varieties of the disease, with pure insanity at the one end, and epilepsy traceable to organic lesion at the other.

complained to me of attacks of vomiting (that is, temporary paralysis of the stomach) when they took dinner alone, and so were apt to let the mind dwell deeply on some interesting subject; and they have told me in wonder that they could dine out and eat and drink all sorts of rich things with impunity. They did not seem aware of the preservative value of frivolous conversation.

At the same time that the moral causes thus impeded digestion, the unwholesomeness of the air in the close shop where the patient was employed poisoned the mucous membranes, diminishing the vitality of their epithelium, and causing them to be abnormally covered with a thick layer of mucus. By this tenacious coating the entrance of alimentary substances into the veins and absorbents was impeded, and the owner pined in the midst of plenty. So all the usual signs of starvation followed. First irregular hunger—by no means a constant companion of chronic deprivation of food, yet sometimes present as here; then loss of appetite, a much more frequent phenomenon; then paleness, languor, weariness, then anasarcaous cedema, and, in short, all the other more marked symptoms of anæmia.

The deficiency of digestive power was exhibited principally in respect of potatoes, pastry, sugar, porter, all of which produced flatulence and pain at the epigastrium, and were in consequence at first omitted from the dietary. She digested easily from the beginning small quantities of milk and beef-tea. It is obvious that if I had written down ever so many "full diets," one to whom the very sight of food was an abomination would have gained nothing by it; she would simply have gone without each meal. So I directed no meals at all to be taken, and no solid food; but a cup of milk with a third part of lime-water in it to be given as medicine every two hours, and a pint of beef-tea in divided doses during the day. I remarked to the class that our object must be to make the patient a carnivorous animal in order to make her omnivorous. After a short time, shorter perhaps than usual, the selected nitrogenous food restored the digestive juices to their full powers, and she was able to take without pain even the most difficult to digest of all aliments.

Sometimes the condition which originates the indigestion of starch is an organic and incurable degeneration. For instance, Bright's disease of the kidneys may do so.

CASE IV.—Maria R—, aged 52, had suffered for four winters from cough and shortness of breath, which went away when the weather became mild. Her appetite was generally good, and she did not suffer from indigestion. In the spring of 1861, as she got better from her winter attack, she found she could not get about from swelling of the legs. This anasarca grew worse, she got ascites as well, and came into St. Mary's Hospital. The urine was found to be albuminous. It was not till she had been in the ward above a week that she complained of bad nights from flatulence, and a sensation of fulness in the epigastrium, which shortly after dinner became pain. Hydrocyanic acid and soda did not relieve this, but the change from ordinary diet to fish without potatoes did so immediately. The patient remained in the hospital more than three months, for abscesses and sloughs formed in the cellular tissue of her legs from distension, and she was a long time on a water-bed. She finally got well enough of the dropsy to be discharged, but never was able to digest well, though no more severe symptoms were produced than those detailed.

Of a more common form of the dyspepsia accompanying albuminuria I find an instance a few pages further on in the case-book.

CASE V.—Frances S—, aged 63, a superannuated governess, was admitted June 7, 1861, with general dropsy of three weeks' duration, dependent on albuminuria. She had for some time suffered a good deal from flatus, occurring soon after meals, and followed by vomiting of the ingesta. When, for a few days from time to time, the victuals were retained, griping and diarrhoea was often the consequence.

In these sort of cases it is to be observed that the symptoms are much more severe, not confined to amylaceous food, and producing the phenomenon of vomiting, which will be a matter for future consideration. If vomiting fails to be produced, diarrhoea often takes its place.

Sometimes the organic disease producing amylaceous dyspepsia is not one of these tissue-changes which are capable of anatomical demonstration, and with which we are familiar from museums and drawings, but those more recondite alterations in the nervous system which are provisionally termed functional. For example—

CASE VI.—James L—, a bricklayer, aged 32, was admitted to St. Mary's under my care in August, 1857, principally for a loss of power and sensibility in the legs, due to some extraordinary exertion six weeks previously. Besides this he complained of pain at the epigastrium, not increased by pressure, but only by taking food. His tongue was dryish and white, his pulse feeble. When this was observed, potatoes were omitted from his dietary, which had previously contained them, and the discomfort ceased. He afterwards had quinine and full meat diet, with an extra allowance of bread to take the place of potatoes, and remained in hospital altogether three weeks, without any return of the epigastric pain.

Here subtraction of diet was possible and effectual, and its effect confirmed the diagnosis. Potatoes, as usually cooked, are probably the most objectionable article of food which can be presented to a weak digestion. The starch granules are imperfectly ruptured, and are held together by cellular tissue, so that they are reduced by mastication only into small pellets, which require long soaking in gastric juice before they can be broken up. Mashing them expedites this process very much, but even then a good deal escapes digestion. Mixing them when mashed with meat gravy is a further expedient which is also useful.

The relation of muscular exhaustion to indigestion was incidentally alluded to in the last case. There are several forms of its exhibition. The most common is that which we see more as members of general society than as physicians, namely, where in a healthy person some extraordinary exertion brings on a temporary inability to digest all food more or less, but especially vegetable.

CASE VII.—A healthy young woman, after being on horseback eight hours in a hot sun, first took a short nap, and then sat down to dinner, of which she partook moderately, having but little appetite. In the evening she suffered much from tightness across the chest; in the night was unable to sleep for flatulence coming up in eructations, and rolling about the bowels; she vomited, went to sleep, and the next day was well.

Sometimes the disturbance proceeds further—

CASE VIII.—In September, 1863, during my autumn holiday, I had sauntered up from Zermatt, and spent the afternoon on the Riffelberg. I remember it well, for it is the last Alpine climb I shall ever have. A little before dinner I was joined by a gentleman whom I had seen some days before stepping out well on the Theodule glacier, and who was evidently used to

the high Alps. But he had now just come from the ascent of Monte Rosa in a shorter time than usual, and both he and the guides confessed to being tired. He dined moderately well, and after dinner proposed to accompany me back to Zermatt. We set off accordingly, but long before we arrived at our destination he was taken with flatulence and eructations, which shortly led to gripings and diarrhoea, with extraordinary explosions of wind. I felt very glad that darkness had cleared the road of all wayfaring spectators, and that we had a guide with us. However, we got down all right, and the next day he was none the worse.

Sometimes the diarrhoea is later in its supervention—

CASE IX.—S. G. S—, after a tedious ride across the Sierra, in Andalusia, vomited a luncheon of bread and cheese which he had eaten. Feeling a want of appetite and a disgust to meat, he afterwards dined lightly on soup, bread, and vegetables. In the night and next morning he had frequent eructations, and in the afternoon of the day following the exertion, griping and diarrhoea, with much flatulence. Throughout the attack the urine was very high-colored, being as dark as porter, though not scanty. A day's rest set all to rights.

In these temporary attacks there is a general feverishness of the system, not, indeed, marked by rigors, but by anorexia, high-colored urine, thirst, and dryness of throat. They are not evidences of bad health, for they arise only in consequence of such exertions as no one need take without they like. But as a rule I doubt if they contribute to good health, especially in middle-aged persons, and are not a wise employment for those short holidays which we Londoners take.

Another form, more suited for medical treatment, is where the indigestion of starchy food recurs habitually after even moderate exertion, an exertion such as does not tire the remainder of the body.

CASE X.—John E—, a sturdy, hard-featured fox-hunter, aged 73, who had lived in the country, farming and riding to hounds all his life, and never been ill before, came to me in November, 1863, complaining that for the two months past, whenever he undertook any of the usual exertion entailed by his active life, he was overwhelmed with flatulence. The abdomen swelled up, and he passed wind first upwards and then downwards; after which he felt relief, if he took rest. He was well so long as he kept quite quiet, but each fresh occasion for muscular effort brought back the uncomfortable symptoms. Prescribed quinine and strychnine, more sedentary habits as suitable to his time of life, and to take luncheon and late dinners, instead of a heavy midday meal and high-tea, as his custom had been.

In this instance it was pretty clear that the defective vital power of the stomach was the first indication of approaching old age, and was a warning that habits more suitable to that inevitable event must be adopted. The older the stomach is, the less it can bear either long abstinence or the overloading which is consequent thereon in a person of active pursuits.

Sometimes the agency which brings on chronic indigestion is of a much more sudden character.

CASE XI.—William S—, aged 37, came to me August 1, 1861. He said that ten years before he had exerted himself violently at Epsom on the Derby-day in hallooing and running. He was suddenly attacked with a severe stitch in the side and excessive flatulence. He vomited, and that temporarily carried off the pain. Before that period his digestion had always been perfectly strong, but ever since he has suffered from eructations of tasteless air from the stomach, within an hour after meals. Recently, after any mental annoyance, he had had attacks of vomiting. Latterly, too, his general health had become affected; his muscles were flabby and tremulous, like those of a spirit-drinker, and his temper had become irritable. There was no pain on pressing the epigastrium. The appetite was moderate, and the evacuation of the bowels was daily natural. After taking iron for a fortnight, his nervous symptoms were much amended, but he complained of the flatulence, and the bowels were costive. He was ordered quinine with strychnine, and pills of aloes and myrrh, which seemed to suit him well, for I find no note of any future change of medicine.

It may be presumed from the permanence of a chronic effect arising out of a temporary cause, that in such cases as this some structural change takes place in the organ primarily affected. But what that change is nobody knows. It is not chronic inflammation, ulceration, or thickening; or else pain on pressure, either sharp or dull, would be found. Perhaps it is a sort of dilative paralysis, such as occurs in hollow organs like the bladder from sudden unwonted stretching. But this will be spoken of hereafter, when we come to speak of the structural changes of the viscera. At present we have to do with it only as a cause of the lightest degree of indigestion, the amylaceous.

The use of aloes and myrrh, the *Pilula aloës et myrrhæ* of the British Pharmacopœia, has been spoken of as ordered in this case. It is not merely a purgative, nor would any other purgative do as well. On the contrary, most purgatives would probably have been injurious. Gamboge, senna, sulphate of magnesia,

colocynth, mercury, and several others which produce elimination of serum and increase secretion generally, do harm just in proportion to their activity. It seems established, by the experiment of making them act when injected in a fluid form into the circulation, that their soluble principles have a destructive agency upon the blood; whereas the soluble alkaloid in aloes (aloin) is a bitter tonic, and the purgative power resides in its insoluble resin. It is very moderately eliminative—in small doses it but adds to the solid excreta of the colonic glands, and elicits matter feculent in smell and of consistent form—whilst at the same time it strongly restrains by its bracing bitter the formation of mucus. See its effect on moist piles, how it dries them up and often makes them smart! And we may judge from this what its action on the gastro-intestinal mucous membrane is. At the same time, by the more vigorous peristaltic movement and by the solid mass passed along the gut, the already existing mucus is cleared away. Aloes is thus employed strictly as a clearer of the intestinal membrane, and it is joined with myrrh, partly to divide it minutely and make a small dose go further, and partly to give the patient the benefit of the extra resin.

I am particular in enlarging upon this point from a fear lest any words of mine should be construed as an encouragement to an unfortunate tendency, common to both the public and our profession, towards commencing treatment habitually with destructive remedies. Some call this "clearing the decks for action;" in a majority of instances they may be said to throw overboard much of the best tackling in the ship and loosen her armor-plates. A so-called "sluggishness of the liver" is a frequent pretext. In a half-nourished person (and nearly all invalids are but half nourished) the feces are apt to be light-colored and scanty, inasmuch as the blood they come from is light-colored and scanty. Blue pill gives them immediately a darker hue and increases their quantity, but sadly at the cost of the patient's strength, while the temporary change soon passes off. Meat and iron produce the same result, by giving them more to be made out of, and this improvement is a real and permanent one.

I have hitherto said nothing about the influence of the mind in inducing indigestion. Perhaps to that more often than to any other cause the history of it may be traced in the classes of society placed above the chance of physical want. I have no notes of ever having attended any patient suffering only temporarily from this cause; it is scarcely a case for a doctor; but probably every one's personal experience will supply him with an instance of it. More commonly our professional experience supplies us with examples like the following:—

CASE XII.—My old patient T—, an anxious lawyer aged between 30 and 40, with a young family, complains that whenever he has to see a worrying client (and clients seem to become more worrying than they used to be), his mouth gets dry, his hands and feet get cold, his eyeballs burn, his head gets in a whirl. He goes home to dinner with a pain in his loins, but with a good appetite. His food lies like lead on his stomach, and seems to produce an intense headache. Once in bed he drops to sleep; but he is woke up, at four in the morning at the latest, by either eructations or wind in the bowels. If this can be passed off he feels somewhat better, and can go to sleep again. I persuaded him to give up his house in London and sleep in the country, which seemed for some time almost to make him a new man, but he still suffers in some degree from his weakness of nervous power, whenever he has any but the most routine business to do.

I suppose such cases will always be common, so long as society is civilized, and brain-work is highly rewarded and concentrated in such places as this metropolis. Remark the sequence of events: the mind occupies the whole business of the brain; no nervous energy is left to preside over the secretions; the mouth is dry from lack of saliva, and if we could see them, we should probably find the œsophagus and stomach dry also; the amylaceous food is not converted; it lies like a weight at the epigastrium till it undergoes a chemical instead of an organic solution; it ferments, and gives out carbonic acid. In the mean time the tired brain is causing headache, and laying the blame of its pains on the stomach; whereas its own weakness was the cause of all the troubles.

It is a foolish plan for a lawyer to sympathize too deeply with his clients—they do not want his sympathy, they want his help and his reason; and they will get both of a better quality, if he does not make himself ill by overcaring.

Where the nervous system is so irritable, strychnine does not

seem to avail. I gave it as a tonic in this case, but without benefit. Charcoal gains temporary relief, but it is a bulky, troublesome, gritty powder, and in chronic cases a man cannot go on for ever taking it. Occasional courses of quinine and occasional courses of mild alkalies seem of most use.

Sometimes the determining agency to the stomach is a sudden mental shock, such as this:—

CASE XIII.—Edward F—, a man of 40, had had dysentery in 1852, but had been fairly strong again till a few months before he came to me early in May, 1860, when the failure of a bank completely upset him. He began to suffer from a feeling of weight at the epigastrium, and of palpitation of the heart after dinner, which, however, would be relieved by eructation. He had nocturnal flatulence, he lost his marital vigor, and grew thin. His nose too had got red, which a man of 40 still careful of his appearance does not like. I saw him again twice in June, by which date some powders of strychnia and pepsine, which I ordered him, and time, seemed to have been effectual in setting his digestion right, and he was able to gratify a wish to travel on the continent.

More commonly the mental distress is of a wearing character rather than a sudden shock.

CASE XIV.—John C—, aged 55 (Dec. 2, 1862), had been slowly becoming bankrupt for some years, though in point of fact he was safe from physical want. He was also unhappy at home through the misconduct of a wife. During this time he first began to suffer habitually from oppression at the epigastrium after meals, so as to grow particular in his diet, and from experience to eschew potatoes. After food he felt something “working up and down” as if flatus was trying to come up. He had grown emaciated, and lost as much as thirty pounds in weight, and his fecal evacuations were scanty and irregular.

In the last instances quoted there was no previous state of the internal viscera which could be suspected of having determined the weakness to the stomach. But that is rather the exception than the rule. Mental causes are much more powerful when joined to some previous pathological condition. As in the following:—

CASE XV.—Mrs. B—, aged 66, came under my care in July, 1861. She had had bronchial catarrh with frothy sputa for several winters, but had suffered little from her stomach. In the early part of the year she had been nursing a son-in-law, a patient of mine, with pulmonary vomica, and had

naturally experienced much anxiety on his account. This was followed by pain in the right hypochondrium and a sensation of cramp in the stomach when it was empty. Vegetable food produced flatulence and was avoided. Apparently in consequence of that the bowels had become costive. She also occasionally suffered from waterbrash.

Is it not fair to assume that the catarrhal condition which had affected the pulmonary travelled to the gastric mucous membrane? that the patient, in fact, had a catarrhal diathesis which by the slowness of digestion resulting from the mental worry was fixed in the stomach? So that the dyspepsia remained though the external cause of anxiety was removed.

The chief mode in which chronic catarrh induces dyspepsia I believe to be by enveloping the food and impeding the gastric juice from freely mixing with it in the stomach; thus the starch which had escaped the mixture with saliva by being unbroken remains still undissolved. The mucus further on in the ilia and in the colon by its slipperiness and elasticity prevents the muscles of the gut from duly urging forwards the mass. Hence we have the starch fermenting and generating gases and morbid acids, relieving pain, indeed, for a certain period after it is swallowed, but by the above-mentioned chemical decay producing infinite distress in the later periods of digestion, failing to afford nutriment in the intestines, and causing costiveness when it gets lower down, making the feces lumpy, slimy, and hard.

I shall in a future chapter recur to this connection between the mucous membrane of the lungs and of the stomach, when I review the subject of what is called phthisical dyspepsia, where a permanent pathological condition of the respiratory produces or seems to produce a very obstinate form of derangement of the digestive viscera, as a secondary consequence.

At the latter end of the cholera epidemic of 1854, when the plague was becoming more general but less fatal, I used to see a good many such cases as the following:—

CASE XVI.—Joseph W—, aged 42, a laborer, had an attack of the prevailing diarrhoea in August. From that time till he came to St. Mary's on October 27, though his appetite was good, his bowels had never recovered their healthy action, being always either costive or relaxed. Lumps of undigested vegetable food used to appear in the feces. For the last three

weeks also he had suffered from pyrosis. The tongue was large, flabby, and redder than natural, as if skinned. The epigastrium was tumid and drummy. The kidneys seemed quite to have recovered the choleraic congestion, for the urine was acid, clear, and free from albumen, though (as in most dyspeptics) of low specific gravity, 1.016. He was treated with rest in bed, liquid animal food, bismuth, warm baths, and castor oil. And the treatment seems to have suited, for he was discharged "cured" (which means in hospital language "well enough to go to work") on November 1. But I presume some symptoms remained, for he was ordered to take a store of bismuth with him.

This is an instance of the partial paralysis of the vital powers of the digestive organs which often succeed to choleraic diarrhoea—I think more often in moderately mild cases than in the most severe. I suppose because they got about too soon; just as anasarca oftener occurs after slight scarlet fever than after bad attacks.

It is wrong to class such cases as inflammation of the stomach and bowels, for there are none of the usual accompaniments of inflammation, such as heat of skin, quick pulse, thirst, or even loss of appetite. So that unless the word inflammation is to be made coextensive with disease, it cannot include them.

But other serious illnesses, though quite unconnected with mucous membranes, will induce secondary dyspepsia. Thus—

CASE XVII.—Harriet R—, a pale, single woman, aged 42, was ill enough to be admitted an in-patient at St. Mary's, July 12, 1862, a time of year when slight cases are usually kept out. She complained of pain at the epigastrium so severe that she took hardly any solid food, living mostly on tea. The mouth was dry and sticky, her appetite was gone, the urine was of the specific gravity of only 1.010 and scarcely acid, the pulse 108, quick and small, the catamenia had become irregular and almost ceased. This state of innutrition she attributed to a rheumatic fever a year before, since which time she had experienced this pain at the epigastrium caused by the amylaceous food which only she could get. She, however, digested well milk and lime-water, and in a week was eating "ordinary diet."

Still further removed from the stomach is the following origin:—

CASE XVIII.—The immediate cause of M. A. S— coming under my care on January 23, 1855, was an attack of cramp-like pain after a meal at which she had eaten both rice and potatoes. But I found that she had suffered after vegetable food for many months, and that this weakness was traced by

her to her last child-labor, up to which time she had always been strong. Her stomach was so blown out by the immediate illness, and so painful for several days, that I had to put on some leeches and feed her on milk and lime-water, but I doubt not that a lesser degree of the same condition was habitual to her. She seemed to have been flatulent, and had costive bowels ever since the birth of her last child.

Those in whom dyspepsia is produced by a mucous diathesis of the internal membranes are peculiarly affected by climatic influences. The union of cold and damp found in an ordinary English winter is the most common exciting cause, making familiar such cases as this.

CASE XIX.—Henry L—, a schoolmaster, first made himself ill at the age of 28 by reading too hard for an University degree. His nervous system was completely prostrated. This was at the end of the summer of 1860. In the succeeding winter he began to feel a weight at the epigastrium after eating, and a strange kind of vertigo, as if the ground was falling away from under his legs. He would have sudden flushes and perspirations. If he could eructate any considerable amount of flatus, there was an immediate relief to the symptoms. His nights were disturbed by cramps and by wind rolling about in his bowels, as if they were going to act. But no, they were constipated. He found acid often rising in the throat, and occasionally vomited a mass of stringy mucus. During the summer he was much better, and he was able to play at cricket, but when I first saw him, in December, 1861, his old miseries were returning with double force. He was getting very weak and nervous, his tongue was white and tremulous, his pulse very rapid, and he said that occasionally he was quite hysterical. Iron did not seem to suit him, in spite of the evident anæmia. But quinine regularly, and *pro-re-natâ* doses of valerian were of use. He has diligently gone on with occasional courses of this treatment, and suffers very much less. He is quite well every summer, but at the beginning of each Christmas holidays he is threatened with a relapse, and comes to be encouraged to ward it off.

In the last case the failure of the nervous system was a cause of the failure of the digestive powers, but the circle of events sometimes turns the other way round in this class of cases affected, as now described, by climatic influences.

CASE XX.—Mrs. R—, aged 34, the mother of four children, is the wife of a thriving tradesman, and certainly as little exposed to any strain on the mental powers as any one I know. But she is fat, leucophlegmatic, subject to leucorrhœa and to mucous discharge with prolapsus of the rectum. She is costive, and was much in the habit, till I told her not, of taking purgatives. She complained of pain and gastric flatulence an hour or so after food, but more especially of general flatulence at night, and said that whenever she

suffered in this way she got hysterical and low spirited. She had observed this to be especially the case in autumn, and certainly it has been so to my knowledge since 1862, the time of year at which my prescriptions for her are dated. In winter and spring she does not suffer so much.

The last-named fact of the patient not suffering so much when the weather is once established, makes one conjecture it may be the changes of temperature rather than the mere degree of cold which is to blame. Thus it was in a stomach originally injured by an acrid poison.

CASE XXI.—E. G.—, an active manufacturer, aged 25, in 1863 had amy-laceous dyspepsia first induced by the vomiting consequent on an over-dose of aconite, in which drug he had been in the habit of indulging. He always suffered in the stomach on change of weather of any sort.

Sometimes this influence of the weather is a considerable help to the diagnosis of obscure cases.

CASE XXII.—In November, 1856, Miss D— came to me complaining that in wet weather she always became constipated. On further inquiry this constipation seemed due to a general catarrh of the mucous membranes with amy-laceous flatulent dyspepsia.

Closely connected with the influence of weather is the influence of locality.

CASE XXIII.—Rev. T. K—, aged 52 in August, 1863, has a low-lying damp living in the West of England. Three years before I saw him he had begun first to suffer from flatulence, with nausea, and acid rising in the throat three hours after food. He got so emaciated that he was frightened, and left home for a couple of years, during all which time he remained quite well. On returning to his parish he remained well for a year, but then back came all his old complaints, accompanied by water-brash in the morning.

A soft relaxing air is as bad as a cold one.

CASE XXIV.—Miss A—, aged 25, suffering the usual symptoms of slight amy-laceous dyspepsia, usually lives at Ryde. She tells me, June, 1862, that she is always better anywhere else, and her brother, an old consumptive patient of mine, confirms the statement.

Residence in tropical climates does not seem to produce the lighter forms of indigestion, unless, as in the following case, there has been some inflammatory injury to the bowel which has left its stains behind.

CASE XXV.—Robert C— came to me in January, 1863, suffering from chronic flatulence, to which I could assign no other cause than his having had dysentery in Ceylon three years previously. He says he thinks acclimatized Indo-Europeans in general are very good hands at digesting their victuals.

In the warmer parts of the temperate zones also the slighter chronic derangements of the digestive organs are not so common as they are with us. And a fortunate circumstance that is, for so much of their diet necessarily consists of starchy food, that if they could not digest it they would be badly off indeed. The dietary suits the climate, and even travellers will find it best to approximate their habits to the natives. In South Italy new arrivals are often heard exulting in the improved digestive powers which enable them to eat meat dishes at breakfast, and to take toll from each passing delicacy at the table-d'hôte. But you will soon see them returning to tea and toast at the one, and restricting their performances at the other more and more to the vegetables and the maccaroni.

I cannot say I agree with those who attribute to this vegetable diet the comparative freedom from indigestion; such an argument seems to me a confusion of cause and effect. For we all more or less, I suppose, admit the value of meat diet in curing such complaints. The freedom seems to me the rather due to that vigorous condition of the mucous membranes which the climate insures.

Compare for example the amount and the intensity of such a disease as chronic bronchitis in Italy and in England. At St. Mary's Hospital, London, in the patients admitted between 1853 and 1861, inclusive, 1 in every 32 was a case taken in for chronic bronchitis. In the statistics of Milan Hospital which I have compared with them in a little volume¹ published last year, there is only 1 in 8,823.

The dryness of the air without excessive heat or colds renders it unnecessary for the mucous membranes to put on their slimy winter coats. They are in a more active condition for the work of absorbing oxygen, digesting, extracting nutriment or water, or whatever else they are required to do. They are filled with

¹ Some Effects of the Climate of Italy, p. 41.

blood, and pass it on rapidly with its fresh burden of renewed life to the rest of the body.

The term by which anatomists have designated this tissue is apt to lead even the most thoughtful of us into a fallacy. Active members of society are named after the work which is their most important occupation. The industry of the lawyer is the administration of the law; the doctor in any faculty ought at any rate to be learned enough to teach; the duty of bishops and overseers is *ἐπισκοπεῖν*—to oversee—each their several departments. But the chief office of mucous membrane is *not* to secrete mucus. It is most active when it is not doing so, and its activity is decreased just in proportion to the copiousness of the mucus. Typical health certainly consists in its absence; robust people pass weeks without expectorating; many find their handkerchiefs clean and unfolded after several days in their pockets, spite of all the voluntary and involuntary irritants to which the Schneiderian membrane is subject; and the urinary and intestinal outlets ordinarily contribute only an infinitesimal quantity, which may fairly be attributed to a temporary defect in some fraction of their large area.

The *real* office of mucous membrane is to offer a passage inwards for oxygen, water, fat, albumen, and other useful substances, and to defend the less easily renewed tissues beneath it from the deleterious action of external agents. These functions it best fulfils when it is bedewed with a moderate exhalation, and not with mucus.

The indigestion of starch is in point of fact the indigestion of sugar, for it is into the latter substance that it is converted by either the action of the saliva immediately, or, in lack of that, by the contact with the mucous membranes slowly. It is therefore quite natural to find that any excess of sugar taken ready-made induces discomfort in dyspeptic patients. It is undigested, and the greater part of it undergoes acetic fermentation by the second or third hour after it is eaten. Some perhaps may undergo alcoholic fermentation, and generate the excess of carbonic acid, which fills the alimentary canal with flatus.

During its fermentation it also encourages fermentation in other articles of food, and by its presence oleaginous food is apt

to be rendered indigestible also. Great discomfort will sometimes go on for a long time from this cause without being suspected, and cease by the simple expedient of leaving off so little necessary a constituent of diet.

CASE XXVI.—Edward W—, a gentleman farmer, aged 45, and inclined to corpulence, came to me in March, 1848, complaining of extreme pain running up the back of the sternum in the third hour after almost every meal, but especially after breakfast. This was followed by intense headache and giddiness, so that he feared he was going to have apoplexy. On examination of the stomach it was not painful on pressure, but drummy to percussion close up to the cardiac pulsation.

I gave him a course of colocynth and mercurial purgatives, and saw him again in July. The headache and the fear of apoplexy was then relieved, but the dyspeptic pain was as bad as ever, and the tongue was very yellow and thickly coated. I desired him to abstain from sugar, and to take his morning tea with a slice of lemon in it.

In March, 1850, he came to me about a gonorrhœa which had become obstinate, and I asked him about his dyspeptic symptoms. He said abstinence from sugar had quite cured them.

In addition to these pains caused by its fermentation, sugar will in some instances cause pain immediately on its ingestion. It has seemed to me most probable that in such cases there is some rawness or local morbid sensitiveness of surface in the primæ viæ, and that the pain is analogous to the peculiar sort of twinge which the presence of sugar will cause in a tooth unnaturally sensitive from caries, or even from neuralgia without solution of continuity. This pain arises too immediately to be due to decomposition. Syrup does not cause it, but only hard sugar.

SECTION II.

Indigestion of Albumen and Fibrin.

Grazing animals are obliged to take their food leisurely, so as to mix it up with the secretions of the mouth, and many of them even to bring it up and chew it again, if they would not have it ferment in the bowels, and sometimes cause rupture. On the other hand, to beasts of prey the only use of saliva seems to be the keeping their throats moist. They need to chew the morsel only enough to prevent it sticking in the œsophagus. It would appear that while vegetables require for their perfect digestion

a perfect condition of the whole alimentary canal as sketched out in the previous section, flesh-meat is at least independent of the salivary glands.

And this observation, drawn from natural history, is quite confirmed by physiological experiment, finding the peculiar solvent of albumen and fibrin in the gastric glands, which the saliva can only aid by affording an aqueous diluent.

There is also this difference between the digestion of starch and of albumen, that whereas normally the former should be rapidly converted into an absorbable substance, and rapidly absorbed in the upper part of the alimentary canal; the latter does not begin to be dissolved till the food has proceeded a considerable distance, and the action is continued for nearly the whole of its course. In the healthy subject, a great portion of the sugar has been taken up before the albumen is affected at all.

As we might have expected, the digestion of animal food is less interfered with by external circumstances, and therefore less frequently interfered with than that of vegetable. Some considerable debilitating action on the nervous system is required to produce even an acute temporary dyspepsia of meat. And I may observe that it is through the nervous system in almost all instances that proteinous indigestion arises.

We will begin with the least rare shape in which we see the disease.

CASE XXVII.—Lucy P—, aged 22, a servant of all work, debilitated by a long rheumatic fever and a hard place, was admitted to St. Mary's for scarlatina anginosa on February 22, 1861. The throat was much inflamed and a little ulcerated. On the 2d of March she was ordered ordinary meat diet, but the ingestion of it brought on such severe pain in the epigastrium that it was obliged to be left off.

An example of making the mistake of overhaste in the desire to renew the flesh lost after acute fevers. A good example, because in anginous scarlatina, if in any, you would expect the salivary glands to have more particularly suffered. You would expect the indigestion of starch to have been the marked feature. But it was not so, and the deficiency of life manifested was a following of the genus fever, not of the species

anginous—the injury to the whole patient took the precedence of the injury to the part.

On that ground I preserved a record of the case, for often as it must have happened in other instances that my patients have been allowed solid meat too soon, I cannot find another note of the fact. And I must trust my memory and my reader's experience to assert that the evil consequences are not confined to scarlatina.

When I say "evil consequences," I do not mean merely the temporary pain, but an attack of feverish indigestion, sometimes of vomiting, which throws the patient back some days.

It is to be remarked that it is not so much the chemical composition as the form of the aliment which renders it improper for incipient convalescents. Through the whole course of a typh-fever a continuous supply of liquid flesh in the shape of beef-tea has been kept up. If the stomach could not digest it the intestines did, and so the patient's strength was sustained. But give him a meal of roast beef, and it rolls about in the stomach till it decays; digestion is impossible, and it causes diarrhoea.

This caution is most requisite in cases where a relapse is possible. As for example in fever, of either typhus or typhoid type, where the bowels have become inflamed. Here solid meat may bring back the worst features of the disease.

But especially in rheumatic fever there is a painful necessity for restricting the supply of nutriment. If meat be given before the power of fully converting it into living flesh is restored, a semi-conversion into lactic acid takes place. And then a febrile disturbance is produced, which is followed by a return of the rheumatic pains. Or perhaps rheumatic fever really is due to an excess of lactic acid in the blood; and if so the relapse which ensues on the generation of it is readily explicable.

Even when the pains are gone and there is an urgent call for replacing lost flesh, the most suitable diet for supplying it will sometimes bring on their return. The redder and more muscular it is, the more it disagrees, and we must very cautiously get back to "ordinary diet," else a risk is run of losing more by a second attack of the disease than is to be gained by haste. Vegetable matter does not expose patients to the same danger,

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and thus by dint of rice pudding, porridge, gruel, bread, mashed potatoes, and the like, you may try to satisfy the mouths which often loudly complain of starvation. If we cannot by such arguments succeed in staying the appetite, it is our duty to be cruel, or experience will soon convince us of the hurtful effects of solid meat in causing relapses.

In acute diseases the condition of the stomach which prevents it from digesting meat is merely temporary, and all that is requisite is patience. But where the failure of the organ is chronic the affair is much more serious. A state of anæmia is induced which is a long time in being recovered from.

CASE XXVIII.—Emma Ch—, aged 17, was admitted into St. Mary's December 21, 1855, in an extreme state of weakness, that she was obliged to be kept in bed. The pulse was 112, there was a systolic bruit with the first sound of the heart; the breathing was very short on slight exertion, the catamenia had ceased, and the complexion had become clear and pale like wax. She complained of extreme lassitude and headache. The bowels were irregular, reported costive on admission, but affected by diarrhœa during the second day of admission after taking broth with meat in it. It appeared that she always avoided meat, that she was disgusted at the sight of it, and that it caused pain in the epigastrium. There was also a painful spot on the dorsum of the tongue, impeding deglutition of solid meat, and this spot and others near it were denuded of epithelium, so as to give a marbled aspect to the part. For this reason she had lived on vegetables, gruel, bread and tea. A gradual return to a meat diet through beef-tea, eggs beaten up in wine, and cocoa at short intervals, aided by absolute rest, borax, iron, and chalk, restored her so by January 10th that she was able to get up and dress. Her pulse was 80, and firmer, the systolic bruit was not nearly so loud as at first, and she had some color in her cheeks. On the 12th she was able to eat the mixed "ordinary diet" of the hospital. On the 15th she wanted to discharge herself from my care; but, when she lay down, I found the systolic bruit was still audible; so I kept her in for a little longer rest, on the excuse of having her vaccinated. She left in February.

It is impossible for a growing girl to make red blood without meat, and the longer she goes without, the less able is she to digest it; the power of the gastric juice is lowered by the abstinence.

As to the organic cause of the complaint in this instance, I presume one may be allowed to judge of the unseen by the seen, and to conjecture that the state submitted to our sight in the external portion of the alimentary tissue (the tongue) was

also present lower down. And we may rationally suppose it to have been worse lower down, for the special gastric functions were defective, while the special oral functions remained unaffected. This superficial aphthous state, where the epithelium is destroyed instead of being raised into blisters, is common in the throat, tonsils, and os uteri, and may by stimulating applications have the edges so raised and the centre so depressed as to look exactly like ulceration. Borax and quinine soon cure it, and are therefore probably equally good for the stomach under the same circumstances.

In some cases of pulmonary consumption we find the stomach affected with indigestion of albuminous food. It is so easy to trace out a physiological chain of causation from diminished diet, to atrophy, deposit of tubercle and phthisis, that it is commonly too readily assumed that such is the invariable course of events. I do not think so. It seems to me extremely probable that the condition of mucous membrane induced in the lung by the presence of tubercle, may be communicated to the stomach, and that the latter may be in fact an effect, not a cause. Though still it is most serious effect, which reacts upon and aggravates the pulmonary injury. This is a practical point, for if it is an effect, we may have more hopes of curing it, and so arresting the galloping consumption which is so imminent.

CASE XXIX.—George C—, aged 24, came under my care at St. Mary's, October 19, 1855. He was much emaciated, and had occasionally expectorated bloody streaks in the mucus from his bronchi. He had also slight hectic, and profuse nocturnal perspirations. On examination bronchial breathing with sibilant râles was found in the upper part of the thorax on the right side, and that part also was flatter than the corresponding part on the other side. During the last two or three months he had experienced pain during digestion. He had pain in the epigastrium and occasional diarrhoea alternating with constipation. After eating there was a feeling of weight at the pit of the stomach. This was especially noticed after animal food. Milk even caused it if taken without bread.

He got a good deal better on rest, quinine, and iron, and was able to take a mutton-chop. But what seemed to do him most good was cod-liver oil, by the use of which he improved in spirits, in power of taking meat, and in weight. He increased as much as ten pounds avoirdupois between October 29th and November 7th, and was discharged as well on the 9th.

The deficient digestion of animal food in phthisis is a very serious thing. It keeps the patient in such a weak state that fatal effects follow shocks which could otherwise be borne up against.

CASE XXX.—Thomas H—, aged 25, a tobacco-pipe maker, was admitted to St. Mary's September 15, 1852, having suffered from hæmoptysis, cough, and other phthisical symptoms for sixteen months, during which time he had been out-patient to the Brompton and other hospitals. There appeared to be crude tubercles to a moderate amount at the apices of both lungs. He complained of a feeling of coldness at the epigastrium, which increased to pain after meals when they consisted of meat. He had also frequent vomiting; even the broth diet of the hospital brought it on. Hydrocyanic acid checked it a little, and bismuth also seemed to deaden the pain in the epigastrium, so that he gained a pound or so in weight, in spite of what we thought was a softening of the tubercles under the left clavicle. He was able to digest fish with less pain than meat.

During this time his father was ill at home with the same complaint as our patient, and on October 13th he had news of his death. He was much affected, but the special symptoms did not seem aggravated, and he left the ward for home at his own desire next morning. Two days afterwards he died quite suddenly; and the immediate cause of decease was reported by his friends to have been, grief at the loss of his father.

In this case it is to be observed that vomiting was present, which is a grave symptom. Its connection with phthisis shall be discussed in the special chapter to be devoted to that subject.

Other local morbid conditions besides those of the stomach will sometimes cause indigestion of meat especially of all victuals.

CASE XXXI.—In February, 1849, Mr. K— came up from Wiltshire to be under my care. His complaint was of vomiting, especially of meat. The morsel seemed to stick at the back of the sternum, to cause a boiling and a gurgling there, and to be rejected, apparently without arriving at the pit of the stomach. He was much reduced in strength and flesh by this enforced abstinence from meat. A fair trial of prussic acid was made without success. But a drachm of bismuth three times a day deadened the morbid sensibility of the part affected so far, that he was able to swallow meat, considered himself cured, and returned home.

Here I felt no doubt that the seat of injury was in the œsophagus, which for some reason or another rebelled against conveying meat.

I suspect that it is the form, rather than the chemical constitution of mammalian muscular fibre which causes it to be objectionable. For in the following case we were enabled to get animal food, provided it were in a liquid shape, conveyed as easy as vegetable.

CASE XXXII.—Elizabeth S—, aged 25, died at St. Mary's, March 3d, 1852, of an ulcer of the œsophagus perforating the pericardium. She had been in the ward since January 23d, and during that time a great variety of articles of diet had been tried, to find which easiest would pass into the stomach. Meat she could never swallow at all, but eggs beaten up with wine and thick cocoa, she could retain better than even quiet fluids. And, indeed, for some time before the accident which caused death, she got a good deal of nutriment.

Even the friability of the fibre will make a difference. Thus in the case of Thomas H., quoted page 53, it is noted that fish could be borne though red meat was not. I cannot lay my hand on another similar case, but the idea is familiar.

Yet there are cases when the very softest animal food is objected to as experimentally causing pain.

CASE XXXIII.—In October, 1858, Mr. George R—, aged 54, first came under my charge. He was excessively thin and miserable to look at, but I could never discover any organic disease in any part. He said that from a boy he had never been able to eat animal food without great consequent pain. Fluid or liquid made no difference. "Even an egg," he said, caused it, and often brought on eructations of sulphuretted hydrogen, though taken in small quantities. He has often constipation with severe headaches. There was slight pain on pressure of the pyloric region of the epigastrium, a very white (nervous) tongue, and a red nose. What had especially troubled him lately was an impression, whenever he attempted to eat meat, that there was a pin in it. He was always quite aware that it was a delusion, but still could not shake it off. He had never been a spirit-drinker, nor a taker of medical drugs; though, like most dyspeptics, he had given homœopathy a trial. I prescribed pepsine, by the use of which he had gained a little weight before he left town. I saw him again next August, with respect to an eruption of purpura on the legs, and he said his old failings had got much better, though he could not quite shake off the fancy about the pin.

The habitual indigestion of meat is allied to the indigestion of fat. There are transitional cases between the two, that is to say, cases where there is partial indigestion of both, when taken in the slightest excess, or in certain forms, but no very glaring

inconvenience or illness under usual circumstances. We find, for instance, people who can eat mutton easily, but not beef. Now the main difference between mutton and beef lies in the infiltration of the bundles of muscular fibres by fat. Some of these persons are close observers enough even to find that they can eat beef-steak, but not roast beef, which difference is capable of a similar explanation. Perhaps the entire absence of fat in fish may be a part reason why it also is easier digested.

SECTION III.

Indigestion of Fat.

The digestion of fat is quite independent of the salivary and gastric fluids. Hence, even when they are in a morbid condition, and when the digestion is so slow that the meals are detained long enough for the fermentation set up to extend itself to the fatty matters present, and to develop butyric and other oily acids, still sufficient fat is digested to keep up the nutrition of that tissue in the body. Nay, patients with indigestion of starch and albumen will sometimes even get obese, especially if large eaters. Several specimens may be found in this volume.

The most familiar instance of the indigestion of fat is found in that disease which gets its name from the characteristic phenomenon arising out of that indigestion—phthisis. In tubercular consumption the body wastes away, not because of the destruction of fat being increased, but because of its renewal being arrested.

Its renewal is arrested primarily and directly by any disease which affects the ilia, such as diarrhoea especially, because the ilia are the immediate instruments of its absorption; secondarily by the inefficiency of the secretions which assist in its solution and alkalization, such as the pancreatic juice and bile; in a less degree by the colonic or fecal viscera; and by the other organs of the body just in proportion as they influence indirectly these. As illustrations of the agency of its renewal and non-renewal, compare the following cases.

CASE XXXIV.—In September, 1857, I was called to see Mrs. B.—, aged 45, reported as in an incipient stage of consumption. There were old scrofulous scars in her neck, and apparently a moderate deposit of tubercle in both pulmonary apices, indicated by bronchial breathing under each clavicle, and by sibilant, occasionally crepitant râles on the left side. This did not seem to account for the emaciation, and anatomically justified the diagnosis of incipency. But it appeared that she had tried to take cod-liver oil and failed; and that the cause of the failure was its induction of diarrhœa; so that the more she took the thinner she got. Also after every meal which included the smallest quantity of any fatty matter diarrhœa followed. The stools were like peasoup, and when she was taking the cod-liver oil, drops of the oil used to be seen floating on the surface of them. Attempts to change this condition failed, and she never got any better, I know, though I did not attend her to the last.

CASE XXXV.—Ellen L.—, an ill-starred orange girl in her 19th year, left alone in the world from all her relations having died of consumption, came into St. Mary's Hospital, January 8th, 1856, in the third stage of the same disease. Indeed, she had been an invalid long enough for the catamenia never to have appeared, being probably arrested by her ill-health. She was a flabby-faced, strumous-looking girl with grayish-brown eyes, much emaciated, and with the finger nails curved into claws. She had much cough with blood-tinged expectoration, for which she had been in several hospitals, always with relief. The upper part of the left ribs were flattened, and there was that large crepitation and metallic bubbling to be heard which distinguishes a vomica, while at the right apex there was fine crepitation with tubular breathing. She rested but little, and the lips were livid from the imperfect aëration of the blood in the obstructed pulmonary tissue.

She was anxious to come into the hospital, because she liked cod-liver oil, took it "with a relish," and got better on it. Her bowels were always costive.

She certainly did improve on cod-liver oil and quinine. Her hectic abated, she got a good appetite, the pulse was fuller, and she lost her cough. So at her own request she returned to her occupation on February 16th.

CASE XXXVI.—In April, 1858, I met in consultation Dr. C. B. Williams on the case of Alice C.—, aged 14, who we made out to have a small amount of tubercular disease at the apex of one lung, and in the bronchial glands adjoining. She had a great deal of cough, and was much emaciated. Up to that time she has been most carefully attended to and actively treated. Blisters, iodine, iron, tonics, had been assiduously administered. Having made our diagnosis, we wrote out a prescription of numerous materials in accordance with the orthopraxy of the day. During the performance of this duty, I remembered that I had seen our patient (who was the daughter of an intimate friend) at luncheon eating some fat mutton, and it struck me that this capability had never received full play. When, then, the prescription was written, I proposed that it should be put away for six weeks, and the

patient have no medicine at all, except whatever she fancied to eat. It was a struggle to waste a good prescription, but yet that was agreed to, and in the six weeks so much progress was made by change of air, and scene, and diet, that the father declared that had she taken three globules, to those three globules he could not but have attributed the cure. This was eight years ago, the patient has since been a sea voyage, and is careful during the winter; the air does not enter her left apex so well as the right, and she is shortish of breath; but she runs, and rides, and hunts, and dances, and has plenty of flesh on her bones.

CASE XXXVII.—Just after Lady-day, 1861, Harriet B—, a maiden lady, aged 30, whose “father and mother had both died of decline,” was placed under my care by Dr. Buckell, of Chichester. She had evidence of a small focus of tubercle in the apex of the left lung, producing pain, dulness, and crepitation (from the partial condensation of the lung round it), but no marked pulmonary ailment. I thought that the quantity of tubercle was slowly increasing from week to week. What she complained of, however, was emaciation and diarrhoea, accompanied by the passage of pus and sometimes streaks of blood in the mucous feces. She was soon relieved of this by appropriate remedies; and with a store of hæmatoxylum and copper, was able to go on a long summer visit to some country cousins. I heard of her as going on well, and did not expect to see her again, or to make her case available for science. But as she returned through London in September, proclaiming herself quite stout and hearty, I had an opportunity of examining her chest again. I could then detect by neither percussion nor the ear any disease at all in the lungs. The pulmonary tubercle had become dormant. Two years afterwards I saw her walking briskly through the streets, looking well.

Observe the difference between these patients (not picked specimens, but such as are constantly occurring), and observe wherein it lies. In the power of assimilating fat. The first had not that power, and lost her life with enough healthy lung in her chest to have lasted her for many years; the second had the power in extraordinary force, so that she was able to take an excessive quantity of oleaginous nutriment, and so to bear up for a time against a most formidable amount of softening destructive tubercle; the third had not, indeed, any extraordinary power, but she had less amount of disease to bear, and she bore it; the fourth had lost the power, but regained it, and with it overcame the morbid diathesis.

It is truly by aid of the digestive viscera alone that consumption can be curable. Medicines addressed to other parts may be indirectly useful sometimes, but they more commonly impede

the recovery; whereas aid judiciously given in this quarter is always beneficial and often successful.

The chest is the battle-field of past conflict, the lymphatic duct the drill-ground for new levies of life.

Remark in the orange-girl the costiveness and the amenorrhœa. Both of these are good things in consumption. I do not mean good signs, which they are not, but advantageous in the prolongation of life. For in such a condition, the fat taken in is not exhausted by even the natural drain—abnormally requisite it is abnormally retained.

The effects of cod-liver oil become less and less a marvel the more we know of physiology. The instinctive desire shown by all nations for an oleaginous diet, and their association of substances of this nature with proverbial ideas of happiness in all ages, show the value of a certain amount of it to man's comfort. The "butter and honey" of the prophet, used as a phrase for royal food, and the constant reference in the Bible to oil as a luxury (though it could have been no rarity in "a land of oil-olive")—these are sufficient to prove its estimation among the Hebrews. The Hindoo laborer, when he devours his gallon of rice for a meal, will spend all the pice he can get on the clarified butter of the country; and "as good as ghee!" is his expression of unqualified admiration. It was a mistake in Baron Liebig to state that oily foods are disgustful to natives of hot climates. All races of men require them and seek after them; and the taste of the Esquimaux, so often quoted, depends mainly on the abundant supply of the article which the sea places at his disposal, coupled with a scantiness of other provisions. Throughout mankind there is an instinctive appreciation of the importance of this aliment, independent of accidental differences of nation or locality. It seems felt to be, as science shows that it really is, a necessary material for the renewal of the tissues, and the desire for it becomes synonymous with a desire for augmented life.

An easily assimilated oil comes, in fact, into the short list of directly life-giving articles in the pharmacopœia; for it is itself the material by which life is manifested. Hence, under its use, beneficial influences are exerted throughout the whole body; old wounds and sores heal up; the harsh wrinkled skin regains

the beauty of youth; debilitating discharges cease, at the same time that the normal secretions are more copious; the mucous membranes become clear and moist, and are no longer loaded with sticky epithelium; the pulse, too, becomes firmer and slower—that is to say, more powerful, for abnormal quickness here is always a proof of deficient vitality. Such are the effects, perfectly consistent with physiology, of supplying a sufficiency of molecular base for interstitial growth.¹

To find the easiest assimilated oil, and to prepare the digestion for the absorption of oil, are the main problems in the cure of consumption.

Closely allied to this condition is what is called in children “strumous” or “rickety” dyspepsia, because it leads to struma and rickets. Cases are common enough among the ignorant and the poor. The following includes as many of the ordinary typical symptoms, and as few individual peculiarities as any I could select.

CASE XXXVIII.—James A.—, aged 7, admitted to St. Mary's, August 9th, 1856, had an angular countenance of grave expression, with gray eyes and long fringed eyelashes. The veins of the eyelids and temples were large and conspicuous. The arms and legs were very attenuated, in strange contrast with the swelled and drummy, but flaccid, belly, on which also the parietal veins were enlarged. The skin of the limbs was dry and unrenewed, giving them a dirty look. In bed he was restless, picking his nose, rubbing his anus, fidgeting his head about, kicking off the clothes, and getting into all sorts of odd postures; but when dressed he was preternaturally grave and quiet, and cried when he was roughly touched by any one. He ground his teeth and perspired profusely when asleep.

Though so thin, he was said to have a ravenous appetite. His tongue was pinkish with white spots; he was thirsty. His stools were copious, pale colored, as if entirely deficient in bile; with inky stains in parts, as if iron had been taken, which, however, was denied. There were no worms in them, though the presence of these parasites had been reported. Their smell was nauseous, resembling that of the macerating tub of a dissecting room.

During a fortnight that he was in hospital, the stools became natural under the use of purgatives, iron, and meat; and in close ratio to the improvements of the stools, was the patient's increase in flesh.

Examination by the microscope of stools like these shows them to contain lumps of unaffected muscular fibre, undissolved

¹ See “Lectures, chiefly Clinical,” by the author, p. 275, &c.

fat and free oil-globules in great quantity. In such quantity, indeed, that their whitish color might really be due to the emulsioned oil. Fat is here taken down—truly “down” to chemical decay; but not taken up—up to living tissue—by the lymphatics.

The passage of free oil shows the imperfect action of the intestines, the lumps of fat the imperfect action of the stomach. Dr. E. Schröder found that in the healthy stomach of a woman with gastric fistula, adipose tissue which was swallowed became so far disintegrated that the oil was freed from the areolar sacs which contained it, united into drops, and floated free in the fluids around it.¹

In the already quoted cases there has been no deficiency of appetite. Fat is swallowed, but is not absorbed. And this would seem to depend on the fault of the lower part of the intestinal canal, of the intestines with their lymphatic vessels. In other patients there is found a disgust to fat and to all that contains it so great as to induce nausea when the attempt is made to force the inclination. In these it seems to me probable that the upper parts of the digestive apparatus, and especially the pancreas, whose duty is the emulsification of fat, are to blame. The nausea often takes the aspect of repugnance to meat, for all flesh is scented by its own peculiar adipose tissue, and owes to that its distinctive odor, which is unavoidably associated in the mind of the patient with the meat itself.

CASE XXXIX.—Miss A. M—, aged 20, was placed under my care November 3d, 1865. She was excessively emaciated, the cheeks were hollow, the abdomen fell in so that the first thing you felt on pressing it was the spine, and the haunch-bones stuck up like the arms of a chair. The space made dull by the liver on percussion was very small. The skin of the body was harsh and dry. The bowels were excessively costive, not having acted for years without strong purgatives or laxative enemata. The mind was unnaturally quiet and retiring; she avoided speaking of her ailments, and would go and cry in solitude if pestered about them. She expressed an excessive disgust to animal food, especially if moist and savory. The only chance of getting her to eat a bit of meat was to have it so dried up that most people would refuse it. There was no hallucination or morbid fancy about her diet, but she

¹ *Succi Gastrici Humani Vis Digestiva, &c.*, auctore Ernesto de Schröder. Dorpat, 1853, p. 30.

persisted that she had severe headaches and pain in the abdomen after it, till such time as it was removed by action of the bowels. Cod-liver oil, which, naturally, a medical man had ordered for her, had caused such excessive nausea and vomiting, that it was impossible to persist in it. She had a craving for alcoholic stimulants. With all her atrophy the color had not left her cheeks, the lips were full and red, and she retained a peculiar delicate style of beauty like a hectic consumptive. The urine, too, was of a natural quantity, color and smell, and of the mean specific gravity of 1.018. So there was nought of what could be called anæmia. The muscles, too, were well nourished and innervated, so that she could walk, and would walk if permitted, more than was prudent; and it was after these exertions that she used to urgently ask for wine. The heart and lungs, whose sounds and motions the skeleton condition of the chest exhibited with anatomical distinctness, were quite healthy.

The only anæmia was amenorrhœa, which had existed for eight months.

The history was derived from a most kind and observant step-mother. It appeared that Miss M— and her sisters had, during their father's widowhood, been under the care of a horrible French school-mistress, who with a sort of insane wickedness conceived a hatred to the family, and actually tried to starve them to death to spite the father. One died, but the circumstances were so painful, that I could not cross-examine into particulars. The elder ones are alive and hearty. And this one seemed to get quite strong. She was plump, and the catamenia came on at sixteen. But soon after that she began to fall into her present condition, and the catamenia ceased, as above stated, gradually.

She had tried vegetable tonics, iron, mineral acids, baths, hydropathic packing, homœopathic remedies, &c. &c., without consequent benefit or injury, so far as I could discover. Also, in passing from one hand to another, usually the purgatives were increased in intensity and variety. Her father, a physician, was growing sceptical of his profession.

I commenced treatment by leaving off all purgatives and giving her, unknown to herself, opium in half-grain doses, with a view of stopping the pain, which she said she always had when the bowels were not open. I took it to be an abnormal sensibility of the intestinal canal, which would not allow the requisite food to lie there a sufficient time. In such a case the orthodox "bowels open once a day" is a diarrhœa. This plan was successful, for with the exception of warm-water enemata twice a week during the winter, she has taken no purgatives since, and now the bowels are open of their own accord, and the opium pills are left off.

I gave her pepsine, which seemed quite inert; and then strychnine, which brought back the pain and curiously prostrated her. It was bad practice.

I have already said cod-liver oil was out of the question.

On January 17th I began to educate her gradually to use Dobell's Pancreatic Emulsion, and she has continued to take from one to three doses daily ever since. I hear of her from time to time as slowly improving: any acquaintance who have not seen her for several weeks, invariably remark on

her gain of flesh. The appetite is better, and the bowels open naturally three or four times a week. (*July 6th, 1866.*)

Remark how the deficiency in the assimilation of fat (induced probably by the starving alluded to, though not assigned to that by the narrator) made no sign before puberty. Up to that period apparently enough had been taken in for the ordinary purposes of life, but after it the supply was insufficient and the failure in health followed accordingly.

What has puberty to do with fat? Certainly something: in normal health girls before the change naturally dislike fat, but afterwards take to it instinctively. Under ordinary circumstances and with the restraints which society teaches us to lay on our appetites, especially in youth, the instincts are scarcely made apparent; but accidental occurrences will sometimes exhibit their existence in a somewhat unsuspected manner. The following anecdote shows what a strongly marked line can be drawn between the child and the woman in their relish for food, and how full development is not exhibited in this or that organ exclusively, but in the whole person simultaneously. It was narrated to me by the chief actor.

CASE XL.—In 1825 or '26 the late Mr. Ridout, a much-respected surgeon in the neighborhood of Russell Square, was summoned to St. Albans, to see the apprentices who to the number of sixty were employed in the Abbey silk-mills at that place. A great number of the inmates of the house were suffering from a variety of obscure symptoms of various degrees of intensity. On examination of the invalids he arrived at the suspicion that their illness depended on the poison of lead, and advised their being treated accordingly. In the mean time, specimens of the water were reserved for analysis, the milk-vessels made of crockery were examined for the metal in question; but nothing deleterious was found, nor had any part of the building been recently painted. Still fresh cases kept occurring, and those who had recovered relapsed, and had colic a second time. The cause of the evil was evidently permanent.

Now the surgeon in ordinary attendance had been loth to agree to the diagnosis which assigned the symptoms to lead-poison, from some connection which seemed to exist between the occurrence of the disorder and the uterine functions. Not only were the catamenia arrested in those attacked, but it was observed, that all the girls under puberty had wholly escaped, while all who had ever menstruated, from the maiden of fourteen to the matron superintendent, were affected in various degrees.

The search was still pursued for the avenue by which the lead had entered the system, and the mystery was at last solved on probing to the bottom of a

salting trough in which fat pork was kept. It was found to be lined with the deleterious metal, and to have impregnated the outside of each joint with the poisonous carbonate. Inquiries were then made of the apprentices themselves for some link which would connect this discovery with the anomalous escape of some parties, and injury to others.

It appeared that this fat pork was placed on the table three times a week, but never alone, being always accompanied by some fresh meat, and the girls were at liberty to take which they liked. Now on questioning them it came out, though not previously observed, that the older apprentices and adults always ate the pork, while the little girls—all, that is, under puberty—invariably chose mutton. The disease, which had attacked the one and spared the others, was a test of the truth of the statements which they had made.

The newly-acquired desire for fat meat at the age of puberty is a most interesting and curious fact. It is more observable in the female sex, from the deep influence on the vital actions of the whole individual which that change exerts in them, but indications of the same thing may be seen in boys. How shall we associate this fact with what we know of the other corporeal functions of this period? The mere growth of the body in size is much the same before and shortly after puberty. Nor is it easy to conjecture what the evacuation of the catamenia can have to do with oleaginous matters.

There is, however, a change that takes place in the excretion of one organ, which modern chemistry has taught us to allay with the chemical changes of all carboniferous substances in a strict and peculiar manner. It is to the lungs that we would look for assistance in explaining the circumstances before us.

It appears from the researches of MM. Andral and Gavarret,¹ that the excretion of carbonic acid by the lung increases in quantity during childhood very exactly in proportion to growth, the augmentation steadily progressing up to the period of puberty. In boys it would seem but little affected by that new function; but with girls the case is entirely different: there the occurrence of menstruation puts a complete stop to the increase in the amount of carbon thus passing away, and sometimes even causes it to make a retrograde movement. Thus a child of thirteen years of age exhaled 6.3 grammes of carbon hourly; a girl of fifteen years and a half, who had not menstruated, 7.1 grammes; while another, also of fifteen years and

¹ "Annales de Chimie et de Phys.," vol. viii. p. 129.

a half, but in whom the flow was regular, gave out only 6.3, the same quantity as the one two years and a half younger. The same observation was the result of experiments on healthy women of twenty-six, thirty-two, and even forty-five years of age, who still continued to experience their monthly evacuations. After the change of life has occurred, the exhalation of carbonic acid begins to increase again, and in elderly women is much the same as in elderly men. What is still more curious is, that when from either pregnancy or illness the catamenia are stopped, then temporarily the pulmonary excretion is augmented and occupies a vicarious position in respect to the other functions.

The uterus, then, and vital actions which are expressed by it, play an important part in the decomposition of carbon in the system. When we reflect on this, changes in the digestion which supplies that carbon and changes in the instincts which supply the digestion will not surprise us, when they accompany the radical alteration which the generative organs experience at puberty.¹

This digression has been so long that it has taken us away from the patient before us. The chief practical point of remark is the importance at that critical period in woman's life of watching over the digestive organs, especially in respect of their appropriation of fat, then so eminently necessary.

A condition leading to the non-assimilation of fat may, like other kinds of indigestion, be brought on by overstrain of the mind, as well as of the body; a fact of the utmost importance in tracing the history and applying it practically to the cure of the patient.

CASE XLI.—Miss A. D— had an ambitious intellectual governess, who finding her pupil very retentive of learning and persevering, from fourteen to fifteen pressed her forwards in her education with great energy. The nutrition of the mind went on, that of the body was stayed; she was very sharp and learned, but she ceased to grow. The menses appeared for once, and never again. It was also observed that she loathed her food, and anything "rich" (that is, greasy) made her peculiarly uncomfortable afterwards, so that she sometimes threw it up. Her temper became queer and her con-

¹ "Gulstonian Lectures," by the Author, in the "Lancet" for 1850.

science fanciful, and she distressed herself needlessly about her failing powers of observation and work. It was noticed too that sometimes in reading a kind of cataleptic stiffness would come over her; she stopped for a minute or so as if a parenthesis was snipped out of existence, and then went on with her employment, unconscious for the most part that anything out of the way had happened.

By rest and quiet treatment her wish for food returned, but still she got more and more emaciated, so that at seventeen Dr. Gibbs Blake, under whose care she was, desired my assistance in the case. I found her on March 6th last presenting an appearance very similar in many respects to Case XXXIX. described a few pages back. The tongue, lips, and cheeks were fully colored; the pulse was firm and rather slow, only 55 when asleep. The temperature of the body at night was 96° Fahr. The heart and lungs were perfectly normal. The urine was clear, of the specific gravity from 1.023 to 1.026. The bowels were open daily. But the skin was harsh and dry, the emaciation was extreme; and the mammæ, which at fifteen and sixteen began to swell, had completely disappeared. The menses had not again shown, though the pudenda were in every other respect developed in proportion to her time of life.

I ordered her the pancreatic emulsion, prepared according to Dr. Dobell's plan, in milk. She took it well and profited remarkably, so that when I sent for her to come again to London, in the middle of April, I hesitated at first to shake hands, supposing it to have been a sister of my patient that I saw. The reason for bringing her up to London again was however this—she caught a catarrhal cold, it flew to her stomach, the emulsion nauseated her; and yet she persisted in swallowing it with her innate perseverance. Suddenly, while engaged in playing a round game of cards, she went off into an epileptic fit, vomited a quantity of bile, and next morning knew nothing of what had taken place.

The emulsion had done its work, and was beginning to do mischief. It has been left off, and I have heard of no more *contre-temps*.

It is a comfort to find a treatment sometimes doing harm, it thereby shows itself capable of doing good.

The dryness and apparently dead dirty aspect of the skin has been noticed in several of the last cases of non-assimilation of fat. The cutaneous imperfection sometimes goes farther and exhibits itself in the shape of eruptions.

CASE XLII.—Miss D'O—, aged 24, has never been plump or strong since menstruation was first established. She is excessively thin, her ribs sticking out, and her bust flat, enabling the normal condition of the lungs and heart to be easily proved. She is energetic, pretty, and lively, and her bright eyes and red lips are much admired. The specific gravity of the urine is 1.023, and it deposits lithates on cooling. The bowels are regular. Rich food is

disagreeable to her, and cream indigestible, so that she is accused of being fanciful in her diet. Latterly she has suffered great inconvenience from an eruption of an eczematous¹ character on her forehead and skin, and thinks she is thinner and thinner. She gets on well enough when living quite quiet, but animal and spiritual life enjoyed for a season throw her back on each occasion, and she does not pick up her health again. A trip to Italy, with its numerous temptations to bodily and mental exertion, was the last blow. She had taken tonics and homœopathic remedies.

I gave her the Pancreatic Emulsion, which is working apparent benefit.

In a lecture on Pulmonary Consumption in 1862² I made some observations on the connection between that disease and cutaneous degeneration, apropos of a case of impetigo of the fingernails. Perhaps the mal-assimilation of fat has something to do with it.

By the artificial emulsion of fat with pancreatic juice, we certainly seem to be put in possession of an easily assimilated oleaginous material, and a most valuable contribution to the restorative pharmacopœia. Dr. Dobell has used it more extensively than anybody else, and he is convinced of its superiority to cod-liver oil in consumption. My only fear about it is that careless or dishonest chemists might manufacture it from trichinous swine, should it chance to be much used; and then, being unboiled, it would be a possible means of introduction of that dangerous parasite. Medical men should warn patients to be careful whom they get it from.

The experiments of Drs. Bidder and Schmidt,³ and of their pupil Lenz,⁴ have indeed deposed the pancreas from the position in which it was placed by Bernard⁵ as almost the sole actor in the digestion of fatty substances; but yet it still remains as an important link in the chain of physiological agencies conducing to that digestion. And it is fortunately one which we are able to supply by artificial means. As to the form of preparation it is much more practically convenient to give (as is done in the

¹ *Eczema* = "a superficial formation, consisting mainly of serum from the denuded connective tissue of the corium, without external existing causes." I do not take this as a dogmatic definition, for dermatologists are a difficult class to please, but simply to explain what I myself mean by the word.

² "Lectures chiefly Clinical," p. 280 of 4th edition.

³ "Die Verdauungssäfte," pp. 241—259.

⁴ Lenz, "De Adipis Concoctione et Absorptione." Dorpati, 1850.

⁵ "Archives Générales de Médecine," 1849.

emulsion) the digester and the article to be digested at the same time, than to divide them, as in the proposal to administer "pancreatine" prepared after the fashion of pepsine. In point of fact it is probable that the activity of the pancreatine would be entirely obliterated in its passage through the stomach, unless it were guarded by the fat with which it is already united. It is the fat that is wanted, and this is an easily assimilated form of it.

That the pancreas is an important agent in the digestion of fat receives powerful support from a class of fatal cases in which the whole of the pancreas is organically altered in structure, and in which during life a peculiar inaptitude to digest adipose tissue has been observed. I shall revert to this subject in illustrating in a future chapter organic changes in the digestive viscera.

SECTION IV.

Indigestion of Water.

The assimilation of water is the least vital process of the whole of digestion. It would seem capable of entering by the simplest endosmosis from the alimentary canal to the blood-vessels, where it is *ipso facto* incorporated with the blood. The process can be carried on as long as life exists at all, and in obedience to the mechanical laws of diffusion.

Now the chief facts observed with regard to the connection of membranes with liquids, are the following:—

1. If a moist membrane be interposed between aqueous solutions of different densities, two currents will run through it, one from the denser to the rarer liquid, and one from the rarer to the denser, and the latter will be the strongest *cæteris paribus* in direct proportion to the density.

2. The current is increased in the direction of a liquid in motion.

3. The current is increased in the direction from an acid to an alkaline fluid.

4. The activity of osmosis increases with the temperature.

There are, then, in the circumstances under which the blood-vessels and the contents of the bowels are placed, three very

marked principal things which promote the passage of fluids into the former from the latter in a greater degree than the reverse. These are:—

1. The comparatively greater density of the blood;—
2. Its motion;—
3. Its alkalinity.

At the same time the animal warmth keeps up the general activity of the osmosis in both directions probably in the ratio of its degree. Where any of these conditions are diminished (removed or reversed they cannot be during life), then the assimilation of water is retarded, and any excess remains inconveniently in the intestinal canal for longer than usual.

CASE XLIII.—A somewhat corpulent lady had lost much blood by bleeding piles before she applied for medical advice, so that she was reduced to a great state of anæmia. She did not come to me about the piles (which were removed), but on account of the flatulent tumidity of the intestines, and a perpetual "*glug-glug*" in them when she moved about. Her appetite was bad, and she therefore washed down her meals with copious draughts of water. She certainly observed that the more liquid she took, the more the "*glug-glug*" was distressing, but still she did not think she drank more than other people. I told her she must drink *less* than other people, and to that end advised the use at meals of weak lemonade without sugar taken in sips, and the sucking of a piece of liquorice when the mouth felt dry at other times.

Here the thin blood of anæmia refused to absorb as quickly as usual the watery fluids from the alimentary canal, exemplifying an infringement of the conditions required in the *first* law of osmosis.

Corpulent persons are very generally thirsty souls. In two instances (Cases XXX. and XXXI. of my Table of Cases of Obese Persons, "On Corpulence," page 142), the corpulence was assigned distinctly to this cause. But they are inexplicably touchy about confessing it. I cannot make out why, seeing it is diluted drinks, not alcohol, that is the subject of inquiry. I dare say, therefore, that the patient before us did take more fluid than other people in spite of her denial.

The "*glug-glug*" of superabundant water may be distinguished from the noises of flatulence by being caused only by moving the body. Gas generally is loudest when the patient is still after exertion.

CASE XLIV.—Mr. H—, a pork-butcher of healthy appearance, 30 years of age, complained to me of the weight and distension which he always felt after his usual meals; though if he took a chop at a coffee-house or a snack standing he did not feel it. The difference seemed to be that when sitting down comfortably at his leisure he took a considerable allowance of liquid, which he at other times avoided. He said he had nothing else the matter with him, but observing the breath short, I examined the heart, and found a loud sawing systolic murmur.

Here the *second* law is exemplified. The motion of the blood was retarded by the valvular disease of the heart, and the absorption of fluids in the œsophagus and stomach proportionally retarded likewise. It is in burly, otherwise healthy, persons with diseased hearts that this indigestion of water is most generally conspicuous. When the patients are seriously ill and laid up by their structural ailment, it does not so often occur. Perhaps they are not so thirsty, and so do not put the matter to the test.

It is a hint sometimes practically valuable, not to overburden with slops the stomach of cardiac invalids.

Another exemplification of the *second* law of osmosis may be observed in impediments to the motion of the blood from the lungs:—

CASE XLV.—Susan B—, a married woman, aged 41, thin, sallow, and hollow-eyed, was admitted under me at St. Mary's June 15th, 1860. She had been subject to shortness of breath for a long time; but this symptom had been aggravated since the previous March, when she seems to have caught cold. Since then, also, she had been able to eat her food only very dry, for if she took fluid with it, nausea and vomiting occurred. This was worst when the asthma was worst. The kidneys and heart were healthy. Her appetite was good.

Headaches also were very frequent, but they seemed independent of the gastric ailments, for they are reported when these are better.

The usual physical signs of pulmonary emphysema were present, and she was treated accordingly with quinine. Her diet was meat and pepsine. She was discharged "cured" on July 13th; the "cured" referring to the indigestion for which she was registered, not to the emphysema, I presume.

It may be remarked that in this last case the rejection of the water by the digestive organs was gastric, whereas in the two former it was intestinal. There is in this fact no significance of the locality of the impediments to circulation—patients with

pulmonary disease quite as often have the gurgling on movement, and cardiac patients will sometimes vomit. Indeed, when you are thinking of them only as *messageries* of the blood, the heart and lungs are one.

An illustration of the *third* law of osmosis may be found in almost all cases of dyspepsia.

Let the reader note first on himself what takes place as a consequence of food in the normal condition of the stomach. Let him take the specific gravity of his urine on rising, and look at the color. Then let the stomach be thoroughly roused to acidity by a healthy breakfast at which the usual quantity of fluid is taken. Observe the urine passed during the next two hours. It is paler, of lower specific gravity, neutral, perhaps alkaline. The fluid contents are augmented in greater proportion than the solid, the basic elements in greater proportion than the acid. If pickled fish and light white wines form part of the breakfast, the limpidity is still more decided.

The explanation of this I believe to be that acid of the stomach being at that period in special excess, the osmosis of water through its walls into the alkaline blood is peculiarly rapid. Water with salts and solids soluble in water enter into the circulation quickly, and fill it. They pass away quickly by the kidneys, carrying off often some of the blood's soda with them, and so increasing the fixed alkali of the urine.

When the stomach gets to rest again and is neutral, the fluids do not pass so fast into the blood, or away by the renal tubes; then the urine resumes its full color, acidity, and average specific gravity.

As the body gets tired with the day's work, the digestion is not so active. And hence after luncheon this physiological variation of the urine is not so marked, and still less after dinner.

Now observe an invalid, the vitality of whose stomach is below par. The physiological variations are much less marked, the urine is never so high and rarely so low as that of a healthy person in healthy condition. Its acidity also alters little during the twenty-four hours. The interpretation of this I take to be the imperfect acidity of the walls of the stomach causing a

delay in the absorption of its aqueous contents, which lie there unchanged or decomposing; in either case a burden, giving rise to pain and inconvenience, sometimes to vomiting.

The importance of obtaining for analysis specimens of urine taken at various periods of the day, instead of trusting to one, is too obvious to require much comment. Take for an example the following, which the date allows to be quoted from memory.

CASE XLVI.—A gentleman came to me yesterday forenoon about a deficiency in his generative powers and other symptoms unnecessary to detail. The specific gravity of some urine he passed was 1.015, and it appeared probable that it was upon this ground that the medical man who sent him to me had been giving iron. I told him to come again this morning, and bring a specimen made on rising, as well as another specimen of that after breakfast. The latter was again about 1.015, but the nocturnal collection was 1.026, showing that the vitality of the blood and assimilation were sufficient.

SECTION V.

Treatment of Indigestion based on the Article of Food not digested.

In former writings on this subject¹ I attempted a division of the forms in which dyspepsia is manifested according to the glands whose secretion may be supposed to be affected. I thought we could assign some to the oral and oesophageal, some to the gastric and some to the intestinal portions of the alimentary canal. I anticipated that we might find a "salivary" dyspepsia of starch, a "gastric" dyspepsia of albumen, an "intestinal" dyspepsia of fat. Further experience has not confirmed my hopes of finding any such trenchant anatomical distinction of the cases which come before us. It seems to me now that a healthy state of stomach and duodenum is as essential as a healthy state of mouth to the digestion of amylaceous matters; that the salivary and intestinal secretions aid powerfully the digestion of albumen; and that even fat is affected by an imperfect activity of the stomach. I have therefore in this chapter based the division solely upon the element of food the digestion of which is most prominently deficient. It must

¹ "Digestion and its Derangements."

be understood that "prominently" does not mean "solely;" that where one article of diet suffers, the others suffer with it, though perhaps in a minor and masked manner.

This prominence of the indigestion of one or other of the food elements, to what should it lead us in practice? Some, influenced by purely chemical considerations, have answered off-hand that we have only got to omit the objectionable article from the dietary and all is done. That which causes pain is to be left off, and the pain ceases. True, but man is an omnivorous animal, and requires omnigenous food. He can be kept alive perhaps for a time on one food, but not in health. Take an example of the carrying out of such a treatment *à l'outrance* in respect of vegetable food:—

CASE XLVII.—E. H—, a Liverpool merchant, aged 30, of muscular build, but rather bloated flabby aspect, came to me in December, 1859. He complained of a foul taste in the mouth like bad fish, low spirits, and want of appetite for breakfast. He had also occasional attacks of headache accompanied by nausea and vomiting, which nevertheless did not relieve his permanent condition. He had been gradually getting into his present state for six years: the administration of bitters and acids had done him temporary good occasionally, but worked no cure. He said that in deference to medical advice he had been most careful in his diet, eating nothing but lean meat and stale bread or biscuit. Vegetables had been forbidden, because they had at first caused flatulence and heartburn, which did not occur at all under the use of the carnivorous dietary. On examination of the mouth, the tongue was seen to be coated with smooth yellow epithelium; especially at the sides; the gums were loosened from the teeth, swelled, red-edged and soft. The patient said they often bled when he cleaned his teeth. I thought at first some of his medical advisers must have given him mercury, but I could get no history of pills or powders, in which that metal is usually administered, and I am disposed to attribute the whole of his existing symptoms to an exclusively meat diet.

For direct treatment I advised him to eat milk porridge and water-cresses for breakfast, salad and meat and stale bread for luncheon and dinner, and lemonade or fruit-water ice instead of tea. As an indirect aid I prescribed some bark and chlorate of potash. He soon got well.

It is singular how slight a change of diet will bring on minor manifestations of scorbutus.

CASE XLVIII.—During his attendance upon me after a severe operation, one of the leading surgeons in Europe related a bit of personal experience apropos of my complaining of gastralgia after salad or strawberries, I forget which. He said he took a house out of London one summer, and used after

his daily work to join his family (who dined early) at tea and mutton chops. After a time he found spots of purpura on his legs, boils, &c. He exchanged the tea for vegetables and beer, and immediately regained his accustomed health.

Patients and doctors both make a great mistake in shunning absolutely all that causes pain or inconvenience. They ought to consider whether the thing shunned is or is not an essential to high health: if it be so, every effort should first be used to get it borne without pain; where that goal cannot be reached, wisdom and duty will often guide us to submit to the pain for the sake of the accompanying advantage.

It may be remarked that the designed attainment of any high degree of voluntary pleasure always involves endurance—endurance of disagreeable sensations which coming upon us against our will would be real torture. A day's hunting, a match at cricket, an Alpine tour, even a picture-gallery or a ball, success in love, literature, or war, are impossible to those who recoil from bearing immediate pain. This ought to be—and (*experto crede*) is—a consolation to many a sensitive sufferer. When it is pointed out that their pains are identical with what they and others have borne without a murmur, nay, without notice, in the pursuit of enjoyment, their hopes and aims may be, not so much for the absence of the sensation, as for the vigor which will ignore it.

The avoidance of meat on account of the inconvenience caused by it may bring on an equally undesirable morbid condition, though not so distinctive in its character as the scorbutus exhibited in the last patient.

CASE XLIX.—In October, 1865, a maiden lady of 35 was placed under my care by Dr. McCall Anderson, of Glasgow, who quite agreed with me in my view of the case, though circumstances prevented him from attending to her himself. Since girlhood her bowels had been very costive. The presence of the retained feces produced disagreeable sensations, to relieve which for twenty years she had been in the habit of almost daily taking purgatives of her own accord. For the last few years pain in the epigastrium had gradually become habitual with her, and as it was immediately increased by taking solid food, she had entirely ceased to take meat. The consequence was increased costiveness, increased sensitiveness of epigastrium, increased debility. The catamenia diminished in quantity and frequency, making a scanty show

for a day or two about three times a year during the height of summer, and never in winter at all. Her complexion was pink and white, and her lips not pale, but she was very thin.

She had an opportunity of breaking out of all her old associations and habits by a visit to some country friends in France, and I urged her to accept it, and to make a complete change in her mode of life. I desired her to let her bowels go unopened for as long as four days, if they chose, and then use a simple water enema, if necessary—to bear the pain caused by the first few mouthfuls of each meal, and to eat more and more meat at it each day without flinching—to drink Burgundy. To aid her in this I gave her for a few weeks quinine and strychnine three times daily.

The last report I have of her is dated March, 23d, 1866, and states that she required no enemata, the bowels acting of their own accord every three days; that food scarcely ever causes her pain, though she eats nearly as much as other people; that the catamenia had reappeared in the February even of this backward spring, after being absent since the previous July.

I said just now that as much injury was done by leaving off meat as by leaving off vegetables. But perhaps I ought to say greater, for though it is not so prominent, and has not such a distinctive name, the condition induced by it is longer in getting well, and might just as easily prove fatal.

Remark in Case XLIX. how amenorrhœa was a disease of the stomach; it usually is so.

The habit of taking purgatives much increases abnormal sensitiveness of the alimentary canal, especially of the stomach. To break through the habit is essential to a cure. I will speak about that in the next chapter.

The injudicious omission of fat from the dietary must doubtless produce similar effects to those which follow the indigestion of fat, in fact the converse of the effects which we aim at producing when we intentionally administer an excess of it as a remedy. As under the use of an easily assimilated oil the skin becomes elastic and firm, the debilitating fluxes cease from the mucous membranes and are replaced by normal secretions, the nerves feel joyous life instead of perpetual pain, and old sores heal up; so we may expect to arise from a deficiency of this article of food a dry wrinkled surface to the body, a persistence of leucorrhœal and other mucous discharges, that feeling of enduring uneasiness which denotes scant life, a deterioration instead of a renewal of all the tissues.

But I am not able to find any good illustrations of the matter. Where fat has been omitted, meat seems to have been omitted also in most of the instances I have referred to, and the symptoms might fairly enough be attributed in a great measure to that; or else there has been a complication of other causes of disease; or else the omission has been intentionally remedial, designed to reduce an over-abundance in the body.

A few years ago, during the prevalence of the attention excited by Mr. Banting's case, I did indeed hear reports of persons having injured themselves by adopting with over-strictness the system by which that famous man tells us he regained the sight of his toes, forgetting that no similar mountain to his had ever impeded their view. But I never saw a real case in point. If the experimenters are really over-corpulent, they feed on their own fat, and submit with ease and advantage to the discipline: if they are not so, the instinctive desire becomes so strong that they cannot resist the sight of the forbidden luxury on the table. The possible rectification of their circumference is not worth such stoicism, and they stop in good time.

I do not think, then, that we profit much from those off-hand advisers who suppose they accomplish everything by forbidding the use of the sort of food which produces the symptoms. Neither in the indigestion of vegetable, animal, oleagious, or watery articles of diet does this restore health. On the contrary, as I have shown by examples which every one may cap out of his own patients, if he will but turn them over in his mind, an actual state of disease may arise from persistence in the remedy.

A short repose for a time, and abstinence from an unnecessary excess in the undigested dishes, is doubtless wise. But that abstinence must not be complete or final. What the patient wants, when he complains he cannot eat so-and-so, is not to have "don't" said to him—his stomach has said so already—but to be enabled to eat it like other people.

The temporary repose may be accomplished often by a change in the mode of preparation of the articles which cause most inconvenience, often by the substitution of something else, not so

agreeable perhaps or so common, but which will not be objected to for a time.

The following details may furnish examples and limits.

IN STARCH OR SUGAR INDIGESTION.

The use of *sugar* in such quantity as to cause a sweet taste may be left off. Tea may be taken in the Russian fashion, pouring the hot tea on a slice of lemon with the skin on, thus retaining all the aromatic stimulus of the drink without its indigestibility. And all lozenges and sugar-plums and sweet confectionery will be interdicted. The best substitute is oranges or lemons.

For ordinary *bread* may be substituted biscuit, toast, or aërated bread.

Potatoes may be finely mashed and mixed with meat gravy.

As *vegetables*, stewed lëttrices, cabbages, spinach, hot, and golden cress, water cress, and salad, cold, may be taken. A small quantity only of these is required to keep up the health, and nobody eats so much of them as they do of potatoes.

From green vegetables possible of digestion by weak stomachs must be carefully excepted peas, beans, and, in short, all the papilionaceous plants usually eaten green. They are famous for producing flatulence. M. Chomel attributes this to the evolution of atmospheric air contained in their spongy husks; but I think the cause lies deeper than that—perhaps in the specific action of their empyreuma, arresting the absorption of air in weakly persons. Else why do they not produce equal effects in the healthy?

An example of the mechanical differences made by cookery in the form of starchy food, are the two sorts of crust known as “short” and “puff” paste. In the former, the butter is thoroughly incorporated with the dough, so as to divide the starch granules one from another, and permeate the gluten; while in the latter the dough forms thin layers, like a quire of buttered paper. If the teeth are imperfect or mastication careless, those strata of dough are well known to form in the stomach a solid mass, which is difficult of solution in the upper part of the intestines; whilst the friable paste (the “short”) is

mixed with the rest of the food, and if the butter be fresh, causes no discomfort.

Now, some dyspeptics are such delicate measures of good or bad cookery, that they can take "short" pastry, but not "puff." It is always worth while to make the trial.

There is an advantage in not mixing too much the animal and vegetable food. In a weak stomach they interfere with one another's digestion. A light luncheon of bread and butter, rice pudding, fruit, and vegetables with a little vinegar, can often be borne without inconvenience, which with the addition of meat would have caused flatulence. The dinner after this may be restricted to meat without injury.

Particular care should be taken that vegetables are thoroughly boiled soft all the way through, and dried on a cullender.

A certain quantity of oleaginous matter renders vegetables in which there is much combined water, less massive in the stomach. Thus, milky rice pudding does not collect into a lump as plain rice is apt to do. In making the latter dish up for baking, eggs should never be used. Baked albumen is one of the most insoluble forms of albumen.

Plain boiled rice should always have a little fresh cold butter mixed up with it. In that way it makes an accompaniment of meat at dinner.

Stewed pears and roast apples are a good substitute for sweets. A little butter improves them also.

But melted butter sauce is an abomination. Nine times out of ten it is rancid, or becomes so five minutes after it is swallowed,—that is to say, directly the flour in it is converted by the saliva into glucose. The best sauces are pepper and vinegar.

IN INDIGESTION OF ANIMAL FOOD, it will be found to be generally the form rather than the chemical constitution of the aliment against which the stomach rebels.

Observe the preparation of food as arranged by nature for the delicate stomachs of the new-born. It is completely fluid; the various elements are intimately mixed together, and are further aided in their solution by the lactic acid into which it decomposes. Milk is not only a type, but is also itself the most perfect food for extreme weakness. I have never yet met with a stomach which could not bear it either made into whey,

or prevented from coagulating by the admixture of lime-water. This fluid meat will pass through the stomach unaltered, the gastric juice will trickle through the pylorus at its leisure after it, and with the intestinal juice will digest the casein in the intestines.

I do not think any one could deserve better of his country than by the establishment of a farm where the milk treatment could be systematically carried out, as at Gäis and elsewhere in Switzerland.

The chief aid offered by art to the conversion of albuminoids into the state of peptone is to increase their softness and permeability by water, so that the converting juice may have access to every particle as soon as possible. The mechanical condition of the nitrogenous aliments is of tenfold more importance than the quantity of nitrogen they contain. If enveloped in an insoluble layer of their own or other substance, they are in fact as useless as gold locked up in a box.

Next to milk, the most digestible form of animal food is properly made beef-tea. The following is the best recipe for dietetic purposes.

Recipe for making Beef-tea nutritious.

Let the cook understand that the virtue of beef-tea is to contain all the contents and flavors of lean beef in a dilute form; and its vices are to be sticky and strong, and to set in too hard a jelly when cold.

When she understands this, let her take half a pound of fresh-killed beef for every pint of tea she wants, and carefully remove all fat, sinew, veins, and bone. Let it be cut up into pieces under an inch square, and set to soak for twelve hours in one third of the water required to be made into tea. Then let it be taken out, and simmered for three hours in the remaining two-thirds of the water, the quantity lost by evaporation being replaced from time to time. The boiling liquor is then to be poured on the cold liquor in which the meat was soaked. The solid meat is to be dried, pounded in a mortar, and minced so as to cut up all strings in it, and mixed with the liquid.

When the beef-tea is made daily, it is convenient to use one day's boiled meat for the next day's tea, as thus it has time to dry and is easiest pounded.

Some persons find it more palatable for a clove of garlic being rubbed on the spoon with which the whole is stirred.

The utility of decoctions of animal food depends on several circumstances which modify the advantages accruing from their liquid state. Heat seems to have an effect in some degree pro-

portioned to the period of application, rendering albumen more or less insoluble, at the same time that to a delicate palate there is a decided loss of savor. Thus soups and stews which are "kept hot" are wholesome enough during the first few hours, *may* be digested at a railway refreshment room for some hours after, but on the second or third day give the rash stranger beguiled into a Palais Royal two-franc dinner an infallible diarrhoea. (*Probatum est.*) Though finely divided, the minute fragments of muscular fibre seem to be individually rendered insoluble by continued heat. Good soup is that which is made most like the above-described beef-tea, and is a highly digestible article; bad soup, that which least resembles it, and is to be avoided as poison. Next to good soup in digestibility comes sweetbread.

At a very early stage of the treatment of albuminous indigestion, tender roast leg of mutton can be borne. A chemical view of the process of roasting shows it to fulfil all the indications of perfect cookery. The heat radiated from the open range coagulates the outer layer of albumen, and thus the exit of that still fluid is prevented, and it becomes solidified very slowly, if at all. The areolar tissue which unites the muscular fibres is converted by gradual heat into gelatine;¹ and is retained in the centre of the mass in a form ready for solution. At the same time, the fibrin and albumen take on, according to Dr. Mulder,² a form more highly oxidized, and especially in the case of the former, more capable of solution in water. The fat also is melted out of the fat-cells, and is partially combined with the alkali from the serum of the blood. Thus the external layer of albumen becomes a sort of case, which keeps together the important parts of the dish till they have undergone the desirable modification by slow heat—a case, however, permeable in some degree by the oxygen of the free surrounding air, so that most of the empyreumatic oils and products of dry distillation are carried off. This is no loss either to our stomachs or our palates. If acetic acid be generated, it is probably carried off,

¹ Not, however, the sarcolemma, which an experiment of Professor Kölliker's seems to remove from the class of substances yielding gelatine. See Kölliker's "Mikros. Anat.," vol. ii. p. 250.

² Quoted in Moleschott's "Diätetik," p. 450.

and if not carried off it is neutralized by the alkaline carbonates, as certainly roast meat is not acid to test-paper if quite fresh. The little that may remain probably renders the muscular fibre more soluble.

Roasting, therefore, is as scientific and wholesome, and *therefore as economical* a process as it is a palatable one, and is well worth the extra expenditure of fuel which is entailed. Baking can never take its place, especially for invalids; for it concentrates in the meat all the empyreumatic products of slow combustion.

Rapid boiling may effect in some minor degree the case-hardening of the meat above described, but the interior albumen seems after this process also more solid and less digestible.

Slow boiling at a low temperature makes, it is true, a nourishing soup, but converts the muscular fibre into a mass of hard strings, which, eaten or not eaten, are in nine cases out of ten equally wasted. The relics to be found in the feces exhibit all the transverse striæ of their original state, quite unaffected by their intestinal journey. The only way to make bouillon digestible is to beat it up in a mortar to a fine pulp and mix it with the soup, as prescribed above in the recipe for beef-tea.

Of all meats, mutton is the most digestible, because it is, when roast, the closest grained, most friable, and least infiltrated with fat.

Birds, on the other hand, when roasted, still more when baked, are apt to be too much dried up. And, therefore, if you cannot trust thoroughly the goodness of your patient's cook he had better have his fowls and his partridges boiled. Other birds are either too dry, too oily, or too empyreumatic for invalids.

The quantity of meat eaten should be gradually increased from day to day; but the invalid's plate should never be overloaded. The look of more than he can eat sets him against it. Judicious times for pressing food should be selected. A cup of beef-tea on going to sleep can often be borne, when ordinary meals excite nausea.

Ladder of meat-diet for invalids.

| | |
|----------------------|----------------------|
| Whey. | Sweetbread. |
| Milk and lime-water. | Boiled partridge. |
| Plain milk. | Chicken. |
| Beef-tea. | Mutton chop. |
| Mutton broth. | Roast leg of mutton. |

In cases where there is a repugnance to fat, light friable fish, such as boiled sole, will be tolerated, while red meat excites disgust. But it is not nearly so soluble in gastric juice, nor so nutritious.

The use of pepsine, or artificial gastric juice, as a remedy, is especially indicated in the indigestion of flesh food. But I think that since its introduction to general use through the ingenious preparation of Dr. Corvisart, it has caused more disappointment than satisfaction. This is because it has been given in unsuitable cases, and because impossible expectations have been founded upon it.

The cases in which it is really useful are those where a progressive anæmia is accompanied by an inability to digest albuminous food. This inability is exhibited in three ways: first, by meals of such diet, even in very small quantities, being followed by a sense of great weight and oppression at the epigastrium, and sometimes by actual vomiting; secondly, by the passage of loose fetid stools containing much unaltered muscular fibre, lumps of fat, and such like remnants of a recent meal; thirdly, by loss of appetite and a nausea roused by the bare idea of flesh food. Often all three phenomena exist together; but each one may be found separately, and is of itself a sufficient indication of the patient's state.

The state of the stomach when these symptoms occur is often an excessive secretion in the upper part of the alimentary canal of alkaline mucus, which envelops the food, and prevents the action of the gastric juice upon it. The consequence is, either its rapid ejection unaltered, or its decomposition, and the evolution of fetid gas. If vegetable food be mixed with the meat,

it ferments into acetic acid; and thus you may have sour eructations from the stomach, and diarrhoea. If this excessive secretion of mucus is recent and moderate, the appetite may remain uninjured—nay, may sometimes be morbidly increased; but a long continuance, especially if joined to progressive pulmonary disease, is sure to induce an anæmic condition of the alimentary canal, which results in a disgust for food.

This state of things it is very important to check. If it goes on, the patient cannot take in sufficient quantities the meat which should refresh his degenerating muscles and pale blood; he cannot, if phthisical, take the cod-liver oil which is to replace his emaciating tissues; he cannot, from weakness, take the exercise which might renew his whole diseased system. And I do not know any remedy which more readily, obviously, and directly does what it can towards checking such a state than pepsine. It acts immediately and surely.

We must not, however, raise our expectations of the power of pepsine too high, or we shall be disappointed. I said just now it "does what it can," and I would have understood clearly what position this agent holds in the rational materia medica, and then we shall know what good results may be demanded with reasonable hopes of obtaining them. It is an artificial, and therefore a partial, substitute for a natural process. Gastric juice from a healthy animal is mixed with the food, instead of that which the patient's stomach ought to prepare. And it acts in the body just as it would out of the body under the same circumstances of heat and motion. The chewed meat is dissolved by it just as white of egg suspended in a beaker is dissolved by it; and the putrefactive process is arrested by it in the intestinal canal just as the putrefactive process is arrested by it in the laboratory.

For you may observe that albumen suspended for twelve hours in pepsine is quite sweet, whereas that soaked for the same time in saliva is most fetid. It is, therefore, a substitute for the natural secretion, and to a certain extent supplies its place.

But like all imitations of nature it is coarse and imperfect. The solvent, instead of being gradually and continuously poured on to the outside of the mass of food, is mixed up in the middle

part of it, and acts merely chemically, without any of the mechanical and physiological helps belonging to natural digestion, and consequently soon exhausts its energies. The chyme, or albumen prepared for absorption, instead of being wiped off and swept away by the stomach, remains for some time mixed up with the pepsine, so that the latter is not freed for the solution of a new portion. By this imperfect process only a very small portion of meat can be dissolved. The small quantity of pepsine in the powder is ridiculously inadequate to the wants of a healthy stomach.

If therefore a medical man hopes that by the aid of pepsine he can get a full and sufficient meal eaten at once, he will fail. But let him give about half a mutton chop with the remedy the first day; and if that is digested well, next day a whole chop; but then he has got to the end of his tether, and the digestion of a larger quantity will not be at all assisted by artificial solvents. After a chop has been digested and absorbed twice, or even once, a day by this means for about a week or ten days, the expedient has probably done all the work that can be fairly asked of it, and the stomach has either recovered sufficient energy to digest alone, or will require different remedies to enable it to do so.

Therefore, for the pepsine to be completely successful—first, it must be given only to those who cannot digest half a mutton chop without it; secondly, more than a chop must not be given at once; thirdly, it must not be required to go on alone improving the patient's condition for more than a week or ten days.

But for the time named I advise its being given alone, and the action not interfered with in general by other medicines. Many will really prevent its chemical effect, and all will confuse your judgment of the advantage gained. In this time it will generally be found that the repugnance of the patient to meat has been overcome, and that a small quantity of it at a time can be relished and digested; the morbid fœtor of the stools diminishes, and the flatulence and distress arising during their passage through the bowels ceases. A renewed strength and a renewed power of assimilation commences, the sleep becomes more natural, with the diminution of night-sweats and hectic; while, at

the same time, the pulmonary symptoms of cough, dyspnoea, &c., relax, and a step at any rate is taken in the right direction towards the cure of the disease. It is remarkable, too, what a slight improvement in the digestive powers will often enable the patient to take iron and cod-liver oil. These are acknowledged the mainstays in the treatment of tubercular consumption, and any expedient, however temporary, which will pave the way for their administration, is a great boon.

IN THE INDIGESTION OF FAT a purpose similar to that assigned to pepsine in the last paragraphs is performed by Pancreatine. In a classification of curative agents I have put the two together as "Constructive" or "Histotrophic" remedies.¹ But in the form of pancreatic emulsion, as devised by Dr. Dobell, the solvent and substance to be dissolved are united together, and their mutual reaction has already partly taken place. I have already spoken of the necessity for and advantages of this union. It is better than cod-liver oil, because it carries the agent of its own solution along with it.

THE INDIGESTION OF WATER as a consequence of anæmia is cured by the administration of iron. Where it results from heart disease or emphysema, it indicates a mercurial purgative, and is temporarily relieved by its emptying the congested portal circulation. An observant patient of mine with emphysema tells me she finds it a good rule never to drink with her meals.

SECTION VI.

Treatment based on pathological condition.

It cannot but strike any one who reviews either the typical cases I have collated from my notes, or those (not essentially different, I am sure) which have occurred in his own practice, that a general deficiency of the vital powers is more notably exhibited in indigestion than in any other disease. And this is equally apparent in each form of indigestion from whatever cause arising. I always, therefore, look forward to giving tonics

¹ "Lectures chiefly Clinical," 2d Introductory lecture in 4th Edition.

as the prime therapeutical aim in all cases. Sometimes that part of the treatment can be commenced forthwith, sometimes it will be necessary to relieve temporarily certain of the prominent symptoms first, but without tonics no cure is effected.

My favorite tonic is quinine, in two-grain doses in lemon-juice sufficient to dissolve it, and diluted with water to a convenient bulk. Its action seems to be principally on the mucous membrane of the mouth, cesophagus, and stomach, which it astringes and tones up to a healthy state, restraining the secretion of mucus, and making the special secretions more active.

To quinine I usually add from $\frac{1}{24}$ th to $\frac{1}{20}$ th of a grain of hydrochlorate of strychnia, unless there are some contra-indications to its use. It relieves flatulence, and that feeling of sinking when the stomach is empty, arising from a sluggish state of the involuntary muscular fibres; and in cases of constipation activates the expulsion of feces. The principal contra-indication to its use is an over-sensitive state of the nervous system. I have been obliged to leave it off in several cases of hysterical women because of the neuralgia which followed it, and in two instances of men agitated by business I have had want of sleep and excitement of mind attributed with apparent justice to strychnine. In the doses quoted cramps never are produced, and the slight inconveniences I have named cease immediately the alkaloid is omitted.

In larger quantities strychnine may sometimes produce spasmodic action of the muscles. I have had this happen in hospital, when administering it for other complaints. But even then not the slightest harm accrues, if the amount is diminished. Some persons have a fear of its accumulating in the body, and the effect of successive doses being concentrated into one, which to me seems impossible in a soluble diffused salt. The fallacy has probably arisen thus: In cases of paralysis, for which strychnine was originally prescribed, the nervous system is usually so prostrate as not to respond to even considerable quantities; after a time the patient becomes more healthy and more sensitive, and then the dose of strychnine which had been given day after day without effect, acts perceptibly, and perhaps vigorously; it acts so, not because it has accumulated, but because the nerves have at last become well enough to be con-

scious of it. A soluble and diluted salt of strychnia seems to me one of the most manageable drugs we have in the Pharmacopœia, because you can graduate the dose accurately to your requirements. The extract of nux vomica is dangerous, because you never know the exact strength of the preparation sold.

This treatment of indigestion does not interfere with remedies addressed to check pain, pyrosis, vomiting, or any of the other morbid phenomena, which will be discussed in future chapters. I have found it the most universally applicable, and therefore I do not mention others of less value.

CHAPTER III.

HABITS OF SOCIAL LIFE LEADING TO INDIGESTION.

SECTION 1.—Eating too little. SECTION 2.—Eating too much. SECTION 3.—Sedentary habits. SECTION 4.—Tight lacing. SECTION 5.—Sexual excesses. SECTION 6.—Compression of the epigastrium by shoemakers. SECTION 7.—Solitude. SECTION 8.—Intellectual exertion. SECTION 9.—Want of employment. SECTION 10.—Abuse of purgatives. SECTION 11.—Abuse of alcohol. SECTION 12.—Tobacco. SECTION 13.—Tea. SECTION 14.—Opium.

IN the cases cited in the last chapter the causes of the indigestion were, as a rule, out of the power of the patient to modify. Nobody for their own pleasure falls into poverty, catches cholera, is ruined in trade, lives upon potatoes, is worried by clients, nurses the dying, &c.; or at all events they do it with the hope of reward here or hereafter, and it is useless telling them not. The complaint cannot be cured by removing the cause: either it is past and gone; or it is as incapable of being removed, as much out of our control, as the changeable weather which in some cases brought on the complaint.

In this chapter I purpose discussing some of the habits of social life which are in a great measure voluntary, which do not promise any sufficient reward, which are persisted in by reasonable persons principally from ignorance, and which therefore we can require our patients to give up, as the principal step towards their cure. "*Sublatâ causâ tollitur effectus*" is a very practical motto when the cause is not too heavy for us to lift.

SECTION I.

Eating too little.

Too little to eat is a cause of dyspepsia familiar to medical men who have practised, and few of us have not so practised, among the lower classes. Eating too little is not exactly a

synonym, for it is found, and by no means rarely, among those with whom it is not involuntary.

CASE L.—Miss H. W.—, January 28, 1860. The patient is a very thin, nervous-faced girl of twenty-three, who complains of a weight at the pit of the stomach, brought on by swallowing any solid. This first began eighteen months ago at a catamenial period, and she immediately persuaded the family doctor to interdict all solid food, and she has taken none ever since. She has lost 21 lbs. in weight, though never stout previously, and has become dreadfully flatulent and hysterical. The heart has become weak and irregular in strength, and sometimes intermitting.

She was a long time in recovering even under an improved dietary, so that I find noted in April, 1861, that though her muscles had become firm and the general health good, yet there was still some pain at the epigastrium after dinner, which I attributed to tight-lacing.

Let it not be supposed that such a mistaken view of what conduces to health is confined to the female sex or to youthful ignorance.

CASE LI.—The Rev. J. S.—, aged 48, in February, 1866, tells me that when reading hard for his degree at the University he first became sensible of pain after eating. His theory was that he ought to eat less; and so he did, less and less; and, with the hope of working a cure all at once, actually lived a whole year on bread and water only. In consequence he is troubled with flatulence, debility, and frequent attacks of palpitation of the heart. The pulse is uneven, and occasionally intermits. As far as I can ascertain by questioning, he feels more pain now after eating than he used to when he began this ascetic life nearly a quarter of a century ago.

A generous animalized diet, taken frequently, with wine, quinine, and strychnine, while at the same time the over-sensitive nerves were deadened by opium and hydrocyanic acid, enabled me to allow him to return home in ten days; but it is of course not likely that he will ever be the man he would have been naturally under a rational dietary.

On July 17th he tells me he is able to eat more and more without pain week by week. His pulse is regular, and he has no flatulence. He has left off all medicine except a quarter of a grain of opium every night. He is more robust than ever I expected to see him.

I used the word "ascetic" in the last observation. Perhaps it was hardly right to do so; for though in familiar conversation applied to abstinence from pleasure with whatever intention, such is not its proper meaning, and it ought strictly to be confined to those self-restraints where the motive is nobler than the mere bodily health, where the abstinence is an active devotional exercise, a mode of honoring God.

Where this form of devotion is part of the established worship of any religious community, it is usually made the subject of minute regulations, designed with a view of securing practical results without injury to sanitary condition. The principles of these regulations seem to be that it should not be excessive, and above all not continuous. Moreover, the spiritual patient is never to prescribe for himself.

In the Church of England abstinence certainly does not constitute any portion of the regular religious services demanded of its members. Truly in the homily "On Fasting" a low diet on certain days is urged; but the preacher destroys the force of his advice by inserting the weakening argument that its general adoption would be a great encouragement to our fisheries. The method of asceticism being thus left to individual management, its intention is often mistaken, and its practice abused. Instead of looking upon it as an exercise, as a sacrificial service, in its essence intermittent, occasional, and departing from its essence if not intermittent and occasional, they treat it as a means of destroying the instinctive desires.

CASE LII.—This last winter an Anglican rector, aged 32, consulted me on account of increasing inability to perform the duties of his ministry. Fits of mental depression more and more frequently came over him, accompanied by a feeling of loss of volition over the limbs. At all times he was weak and incapable of muscular exertion, and was thrown into a cold sweat by any bodily or mental effort. There was loss of appetite, pain at the epigastrium and flatulence after eating, with palpitation of the heart. This local condition of the stomach seemed to have been more prominent a symptom previous to his visit to me, for I remarked that the pit of the stomach had been blistered, by the advice of a former physician I presume. This state of things had been gradually coming on for about two years. He had several times taken short holidays, but with no permanent benefit.

On conversation with him, I found his notion of the relation between soul and body was that of a constant antagonism. It seemed to him that the aim of the former should be to subdue the latter continuously and permanently—not only to knock it down, but to keep it down. He ate merely to enable him to visit and preach and pray; he drank whatever liquid came first; he had married because the world must be peopled, and because he wanted a helpmeet in his work. But he rejoiced when his appetite failed, and when he felt no pleasure in his victuals or wish for wine; and as soon as his sweet young wife had borne him two children, they ceased by mutual consent from bodily matrimonial intercourse. The last-named final blow to the flesh had been given four years before.

Surely this is Stoicism or Gnosticism, rather than the religion of the Bible. I am not fond of preaching, especially to clergymen, or of turning texts into traps; but people should not forget the threatenings at the end of Ecclesiastes, where we are told that God will bring us to judgment and make us account for our missed opportunities of enjoyment, for not being cheerful in our youth and loving the beautiful; and where we are urged on those grounds to "remove sorrow from thy heart and put away evil from thy flesh." Forgetfulness in youth of the Creator and His creatures, disregard of the Giver as exhibited in His gifts, and neglecting to render Him thanks by using them, always entails a punishment on either mind or body. A joyless man becomes an unhealthy man; in body if they are bodily joys that he has foregone, in mind if they are mental.

SECTION II.

Eating too much.

Occasional excess in the pleasures of the table is common enough, but people do not go to a doctor for its consequences. It suggests and often spontaneously carries out its own cure, and the shame which accompanies it causes the "remorse of a guilty stomach" usually to be concealed. Rightly enough, for as a rule there are few faults so deserving of contempt as gluttony. Indeed, I can remember but two instances in my life where it was not so, and I will quote one of them here, it being always pleasanter to reflect the bright than the dark side of human nature. I dare say I shall find some future opportunity of introducing the other also.

CASE LIII.—In November, 1859, I was requested to visit a lady past middle life, who, when I entered her library, certainly looked the picture of robust bloom. "Dr. Chambers," said she, "what is a British matron to do who habitually eats too much?" The question suggested the shortest of replies. "Aye, it's very easy for you to say 'Don't;' but, if I didn't, I should be a widow in a week. You know how old and infirm Lord C— is. He has always been used to feed highly, and if I cut the dinner short, or did not encourage him by my example, it would be his death." It seemed that the symptoms of eating too much were a sense of repletion and a want of sleep during the night, feverishness in the morning, a sort of worrying fidget in the bowels, sometimes followed by constipation, sometimes by fetid semi-liquid

evacuations, never by natural motions, frequent headaches, and a tendency to depression of spirits. Sometimes she was attacked in the night by what she called "spasms," that is to say, severe pain in the epigastric and umbilical regions. If that ended in vomiting, she experienced rapid relief, and was better than usual for several days.

My prescription was an aloës and myrrh pill before dinner daily, and a recommendation of a dry diet as mixed and varied as possible, avoiding only soup, slops, butter, and fat. But I doubt if it was quite successful, till the exciting cause of this virtuous intemperance bore his many years and honors to the grave.

I question if my recommendation of a mixed diet was wise. It would have been better to have taken a preponderance of meat one day and a preponderance of vegetables another, but more generally the latter.

The majority of exceders have not such a good excuse for their violation of the rules of propriety, and would with reason suppose themselves to be laughed at if asked "'Is it for fear to wet a widow's eye' that you eat so much?" They seldom have the discernment shown by the last-named patient in recognizing the cause of their ill-health, and are loath to give it up, even when brought to confess that they are too fond of the table.

CASE LIV.—Mrs. L—, aged 32, the wife of a rich manufacturer, came to me in the spring of 1860, complaining of a weight and distension felt at the epigastrium half an hour after meals, and lasting for several hours. It was followed by eructations or returns of small quantities of food, not sour and not accompanied by flatulence. The bowels were loose, the motions never formed, but ragged, and sometimes diarrhœic. There was a nasty taste in the mouth in the morning, feverish and restless nights, and frequent dull headaches, with low spirits and hysteria. The catamenia were irregular and somewhat profuse. She said that these symptoms had commenced nearly two years previously, when her husband had some pecuniary troubles. I questioned her strictly as to keeping up her spirits by indulging in alcohol at that time or since, and believed her not guilty. But she confessed to having become very fond of good eating, and having a great appetite for anything "nice." She was a comely, large-framed woman, but her outline was growing rather out of drawing.

Remark how in a weaker-minded person the mind becomes affected, while the more robust and educated intellect shown in the previous case bears up and gains strength by resistance.

The error in diet which in a woman produces hysteria, in a man declares itself by melancholy.

CASE LV.—Richard R—, aged 48, a white-faced and fat clerk, came to me a month ago, persuaded that he had diseased heart by the palpitations of that organ which he experienced, especially in the morning. He had lost interest in life, having succeeded in obtaining a comfortable income more than sufficient for his wants, and having laid by a provision for old age. He was passing a drab-colored existence, taking no pleasure, following no hobbies, and occupied only with the routine of his office and attention to his health. Of the latter he had a bad opinion, and considered that he was delicate and required abstinence from excitement and constant support. Besides his regular meals he was in the habit of taking a slight anticipatory luncheon at 11, an intercalary snack at 4 preparatory to dinner at 6, and a small refresher along with his glass of grog at bedtime. The consequence was sleepless nights, flatulence of stomach, palpitations of heart, returns of small quantities of food by the œsophagus, irregularity of stools, increased obesity, and desponding views concerning time and eternity. To his great terror, I made him go quickly up and down stairs, and examined the heart, the sounds and beat of which were quite natural after this natural excitement. But the stomach was large, and gave a drummy sound on percussion quite up to the apex of the ventricle. A counsel to leave off bacon at breakfast, to eat only at meal-times, and a short course of hydrochloric acid, made a new man of him.

How easily such a person as this might be turned into a hypochondriac or a lunatic by coddling and sympathizing!

If the last patient had really got a diseased heart, I should have given him probably a treatment not very different in principle, but I should have especially cautioned him against gorging himself even at meals. For now and then cases occur like the following.

CASE LVI.—John B—, aged 71, a cheerful old gentleman, came to me in May, 1852. He said he had always taken great care of his health, but had not consulted a medical man since he had rheumatic fever at fifteen years of age. His reason for taking care of his health had been a tendency to shortness of breath, which he said he had experienced so long ago as the beginning of the century, when reading Shakspeare to the young ladies of the period. Examination of the heart showed it to be very weak, irregular in time and strength, with a confusion in its valve sounds, and a dulness on percussion extending four inches in width from the epigastric across the cardiac region. The pulse at the wrist was equally weak. He had always enjoyed his table, but latterly had found that taking the quantity requisite to satisfy him oppressed his chest, and made him faint. Nobody could discern better

than the patient himself the true pathology of his case, nor give better advice than his own reason suggested. But unfortunately he was not able to follow it, for a few weeks afterwards I had a letter from young Mr. B—, saying that his father had eaten heartily of an indigestible mixed dinner, and lay back in his chair dead.

It very often excites the astonishment of these patients, after having it explained to them that their danger lies in over-eating, to be told to increase the number of their meals. Yet such is in most instances the best way of meeting the case. Small quantities frequently taken are the best device for introducing a full supply of nutriment without overloading the alimentary canal. During the day, four hours is the longest time that an invalid should be allowed to pass without eating something; and for some two hours is a sufficient interval. Very soon the appetite begins to accommodate itself to these habits, and the little meal that is committed to the stomach at once, instead of lying dormant in the paralyzed organ for hours, as was the case under former customs, is enabled to pass away rapidly.

The excess in eating is not uncommonly rather relative than positive. It would not be an excess under normal circumstances, but is made so by those present. Of this acute examples are given in Cases VII., VIII., IX. in the last chapter, where an ordinary meal was an excess under extraordinary temporary circumstances. The following is chronic.

CASE LVII.—T. J—, a lawyer, naturally inclined to be corpulent, aged 52, was well till last October, when he sprained his ankle rather severely. He was always used to a good deal of bodily exercise, and of course in his profession equally employed his mind; so that it was not to be wondered at that he habitually fed largely. This did him no harm till the accident to his leg, after which he began to suffer from indigestion. The bowels were costive, and the stools never homogeneous, but consisting of rags of solid matter in much fluid; he had acid risings in the mouth, eructations, wind rolling about at night in the intestines, and breaking off per anum in the morning. What most distressed him and brought him under my care was want of rest at night. He either could not sleep at all, or else woke up after a short nap and could sleep no more. Opiates had made him worse. Worried in this way, he had lost two stone in weight in the six months since his illness began, and appeared to have been striving to replace the loss of flesh by keeping up his usual high feeding. But analysis of the urine showed that there was no lack of active metamorphosis going on, for it was at all times of the day fully acid, clear, and with a constant specific gravity of 1.024 to 1.025, varying singularly little

with circumstances. He was nervous and irritable, and, like all nervous people, had a smooth, white tongue. There is small doubt but what a return to active habits would have restored his usual health, but unfortunately some remains of lameness precluded it. He was astonished when told he ate too much, and doubted if that was possible, when a man was losing flesh. But experiment proved to him what the symptoms led me to pronounce, namely, that the ingesta were in excess of what was required for the nutrition at that time, though they were not too much for him when he was living more actively.

In this instance the headache which frequently accompanies excess of mixed diet was absent.

The loss of flesh is interesting.

Loss of flesh is rather an exceptional accompaniment of the dyspepsia of excess. The following is a much more common case, causing me a little difficulty in selection, so many are exactly alike.

CASE LVIII.—Mrs. H—, a very stout lady of about sixty, came to me in June, 1852, to consult principally about her obesity. But I found her a martyr to gastric dyspepsia, which produced a feeling of emptiness only to be relieved by taking food. This overeating increased her dyspepsia, so that she had a constant diarrhoea, and frequent vomiting. Yet with all this her corpulence increased more and more. Restriction of diet relieved her stomach symptoms considerably, but her bulk was unreducible. I believe the cause of her death some years afterwards was pneumonia.

Dyspepsia certainly does not prevent corpulence. In thirty-eight cases of obese persons, which I printed in a tabulated form some years ago,¹ five of the number suffered in this way. In fact, it is not impossible that one cause of that hypertrophy may be the delay of the victuals, both animal and vegetable, in the stomach, and the setting up of a fatty fermentation in the carbonaceous material instead of digestion. This obesity of persons with weak gastric digestion is peculiarly distressing: the defect in muscular power prevents the use of exercise for a time sufficient to prevent its increase, and hence it becomes a daily augmented inconvenience. The encroachment too of the adipose upon the other tissues, and the dilute spread of the insufficient blood through an unnaturally large quantity of capillaries, tend to produce atrophy of important parts; and

¹ "On Corpulence," p. 139. London, 1850.

hence we find as consequences of corpulence, dilatations and degenerations of the heart, fatty deposits on the same, Bright's kidneys with dropsy, &c. The addition of many pounds to the body in the shape of fat, requires certainly a very large, although not perhaps a proportionate, addition of blood and bloodvessels to nourish it; yet the same heart has still to undertake this extra labor. The balance then between the systemic and the pulmonary circulation must be destroyed, and the lungs be unequal to the excretions of so much more carbon than they were intended to provide for; hence the blood becomes more venous, more liable to form congestions, and to dilate the yielding walls of the heart by its retarded pace. The effect of diminished circulation in also producing degeneration of other parts need not be enlarged upon.

SECTION III.

Sedentary habits.

Among the originators of dyspepsia we commonly find included in books sedentary habits. But when I come to look over my notes, I cannot extract any cases which would exhibit this fact. I do not know by experience if a sedentary life, such as that of a clerk or bookkeeper for example, would induce the defect unless it were joined to some other cause. Alone, with a properly regulated diet, it seems consistent with quite healthy digestive powers. We find it so in the bedridden under our care, whose life may be viewed as the type of a sedentary one, yet they do not suffer except from some more than ordinary folly in diet, or from the misuse of some drug.

When therefore those who come before us for indigestion attribute their state to a sedentary life, we must not stop there, but search further for other and more certain causes. For example:—

CASE LIX.—M. S.—, editor of a weekly newspaper, aged about forty, laid on the many hours he spent in the office-chair the blame of enteric dyspepsia, which spoils his night's rest by waking him in the early morning with flatulence. Charcoal gave him only temporary relief, but dividing his meals more, taking a good luncheon and a light dinner, seems to have set him up completely. This was in 1856, and now he seems quite equal to his official duties, and looks as robust as any leucophlegmatic men ever do.

Let it not be supposed that I underrate the value to health of exercise in the open air. The fresh oxygen, the cheerful occupation, the distraction of the mind from injurious tension, must, however, be taken into account by the physiologist, and not all the benefit set down to muscular motion, which latter element is but a small part of what is usually included under the recommendation of "exercise" by a rational physician. I have come across more brain-laborers whose digestion has been injured by injudicious excess in muscular exertion than by the reverse. Let not those whose avocations are necessarily sedentary despair of finding, by judicious experiment, a mode of passing their lives in complete, though not of course blooming health.

The division and arrangement of the meals according to the mode of life is a very important part of the science of digesting them. Much must be left to individual experience, but regular literary men, and others who do routine work at the desk, I generally find are better for taking a meat luncheon and only a light dinner after the day's labor. And if they take a glass of grog, it should be at bed-time. Great late meals washed down with a quantity of alcohol do not suit them.

On the other hand, those who pass a muscular life often suffer from eating in the middle of the day. For instance, I recommended the following to dine late, and to take at most a glass of wine and a biscuit in the middle of the day.

CASE LX.—A. W—, a schoolmaster, always dined with his boys at one o'clock, and tried to work off his dinner by playing at cricket with them in the afternoon. But the more he played at cricket the more he suffered from discomfort at the epigastrium followed by intense headache.

CASE LXI.—A Welsh country gentleman, aged 57, was under my care in 1862 for weight at the epigastrium, acid eructations, headache, and sleeplessness. He said the beginning of it was over-smoking at Cambridge; but since then he had been to a number of physicians, and taken a great deal of medicine, homœopathic and allopathic. He had been in the habit of much exercise, and always dined at two o'clock. Dining late relieved his symptoms, but he did not seem satisfied without medicine.

Laborers, sportsmen, pedestrians, postmen, are all instances of ready access, from whom it is easy to learn that habitually to

eat heavily during the hours of bodily toil produces sooner or later indigestion, and that health and comfort are secured by making supper the principal meal.

SECTION IV.

Tight lacing.

One wet winter day at Florence I had been spending the morning in the studio of a sculptor of world-wide reputation. We had discussed the perfections of female beauty, and I felt that I was sitting at the feet of a thinker, as well as an "*elegans formarum spectator*." In the evening we met at a hospitable palazzo, and under cover of the waltz music from a quiet corner of observation saw whirling by us in the flesh much that we had been thinking of in the marble and the clay; and both our eyes could not but follow one particular face, famous for the assistance its great natural beauty received from art. "Face," I said, but the mind of Hiram Powers was penetrating deeper, for he exclaimed, after a short silence, "That is all very well, but I want to know where Lady —— puts her liver!" Where, indeed! for calculating the circumference of the waist by the eye, allowing a minimum thickness for the parietes of the chest, an area for the spine, œsophagus, vena cava and aorta, the action of the waist seemed to admit of no room for anything else at all. In such a body the liver must be squeezed down into the abdomen, stick into its hollow neighbors, and infringe upon all the organs. The whole portal circulation must be carried on under great mechanical difficulties, the due supply of arterial blood reduced, and its return by the vena cava resisted. What a tough body it must be that does not become pot-bellied from the downward pressure, red-nosed from the hepatic obstruction! And must not, therefore, the style of dress which gives birth to such deformities be an abomination and an eyesore to the artist?

The organ which suffers most is the unresisting stomach, which is dragged and pushed out of all form during the continuance of this packing process. The longer the continuance the more it suffers. If it is constant, we get cases like the following:—

CASE LXII.—Emily K—, aged 16, was a full-grown woman in form, and had been catamenial for three years; but when admitted to St. Mary's in March, 1864, she was still wearing an old tough black pair of stays made for her when a child. The consequence was that she had never been thoroughly well all that time. The catamenia occurred every three weeks, and, for a girl of her age, were at first profuse, lasting six days; but latterly they had lasted only three days. She had constant pain after eating, frequent vomiting, and frequent rising of the food in the throat, on which latter occasions it was sometimes tinged with blood, especially at the menstrual periods. This constant ill-health had made her thin and hysterical, but her lungs, heart, and indeed all the solid organs seemed perfectly normal. When admitted she was vomiting all her meals. At first she had hydrocyanic acid, but was no better in any respect for it; but on the 6th of April she was put upon a course of cold shower-baths every morning, with valerian three times a day. This, with the removal of the obnoxious stays, seems to have been immediately effectual, for on the 12th it is reported she had not vomited for two days, and on the 18th she was discharged "cured."

"Cured"—of her stays. Easy task in such a case as the above, but presenting insuperable difficulties much more often. Women have a very strong won't.

CASE LXIII.—G.'s "Anonyma," aged 28, was brought to me in August, 1859, by a gentleman whose mistress she then was. She had borne several children in the course of her career, but still retained a beautiful slim figure which she had when a maiden. This she had accomplished by bandaging very tightly after each confinement, and sternly refusing to have any change made in the shape of her corsets. The consequence was that for several years she never took a meal without throwing some of it up afterwards, and suffered from obstinate constipation, for which she was in the habit of using violent purgatives. She seemed quite as aware as I could make her of the cause of vomiting, but resolutely refused to do anything which might imperil her outline. In fact, she implied she lived by her beauty, and intended to keep it at all hazards.

I do not know how to answer an argument of that sort.

Another difficulty lies in the diagnosis of the true cause of the evil. Asking questions is useless; "*aucune femme ne se serre*," remarks M. Chomel of his countrywomen,² and I am sure we may say the same of the confessions of ours. Moreover, if you try to detect them by passing your hand underneath the stays,

¹ I borrow this term from the newspapers in no scoffing spirit, but pitifully and sadly to describe one who has lost her maiden family name by losing maidenhood and family ties, without acquiring a right to any other. It is hard to smile at the loneliness which "no name" expresses.

² "*Les Dyspepsies*," p. 251.

as M. Chomel used to do, they stinge in, and defend the honor of their corset by a fraudulent kind of gymnastic. So you gain nothing by what is in truth rather a rude proceeding. The best way is to make an excuse to have the clothing taken off, and observe whether it has crumpled and marked the skin by pressure; then to desire the patient to take a full breath, and notice whether the lower ribs are duly expanded, or whether the intercostal muscles and diaphragm have lost power by misuse.

By that means you can find it out when the tight lacing is still continued at the time you see the patient. But in most cases it has been left off on account of the increasing pain it causes, and a suspicion that it causes the other symptoms as well; or perhaps it is temporarily left off for the visit to the doctor. And I suspect that it is the case with a large proportion of the instances of habitual vomiting, soreness of epigastrium, of hæmatemesis, of ulceration of the mucous membrane, flatulence, and hysteria, which come before us. These symptoms are most common in the other sex—why? because their reproductive organs differ from ours? Surely not, or we should find the same peculiarity universal among females throughout the animal kingdom, or at least throughout mammals. Yet we read in veterinarian pathology no hint of a distinction between the stomachs of our bulls and of our cows. Is it not more reasonable to conclude that the important difference lies in the clothes, which we can see, rather than in some mysterious invisible influence of the generative viscera over the digestive, of which there is no evidence?

I should, therefore, in all women where these symptoms appear, suspect at least, for no harm is done by the suspicion, tight lacing, though I should not find it still persevered in or confessed.

As an alteration of form is sometimes diagnostically useful, it may be mentioned that the prominent abdomen of a tight lacer generally sticks out straight from above the pubes, sometimes overhangs it: that of a naturally short-bodied stout woman slopes up to the umbilicus at an angle of 45° .¹

¹ See Albert Durer's "Outlines of Proportion."

In a long-bodied woman, such as in the Phidian proportion, the abdomen ought to be flat.

In men there is not the same temptation to compress the viscera for ornamental purposes among those who have the regulation of their own dress. But it has often struck me that the tight trowser-bands and buttoned up uniform jackets, which French schools delight to enforce, must be very unwholesome, independent of the impediments they offer to cricket and football. One does not wonder at the pale, greasy, old looks of the poor lads. They must certainly suffer from indigestion, and probably it is this chronic ill-health which induces certain obscene habits said to be common amongst them.

SECTION V.

Sexual excesses.

I alluded in the last paragraph of the last section to a perversion of the sexual instinct to be found sometimes accompanying indigestion. I have seen it named as a cause, indeed it is so named by M. Chomel in the work I quoted. My experience does not enable me to agree in this, though I cannot deny the possibility of it. Still I believe that more searching inquiry into those cases where the two morbid phenomena are associated together, will often enable us to discover a different sequence, and to call the quasi-voluntary act of lust an effect of feelings perverted by disease. A perfectly healthy lad never invents this for himself; and if he has taken it up from imitation, curiosity, or the suggestions of infamous pornographic literature, disgust and boyish honor soon break him of it. Where it is continued there is almost always some mental or bodily disease requiring medical care. As for example:—

CASE LXIV.—Augustus T—, aged 24, came to me in October, 1863, saying that for some years till lately he had been in the habit of solitary lust, and that he was suffering from excessive flatulence, and from pain produced at the epigastrium by any quantity of food sufficient to nourish the body. He had broken himself of the habit, but was dreadfully distressed in mind at the degradation of ever having indulged in it, and attributed to it the low state of bodily health he endured. But I found on inquiry that from childhood he had been a greedy boy, morose and weakly, that he had suffered from worms;

and that his education was neglected on account of his health, long before the nasty practice he told me of had been adopted.

On the other hand, I can remember in my notes records of at least two cases where the obscenity had been learnt by imitation and practised as often on the average as twice daily for a succession of years without the alimentary canal suffering at all, whatever other functions may have failed.

The natural sexual excess is also said by French writers to produce indigestion. I do not happen ever to have seen an instance. The digestion of prostitutes (whose trade may be considered an excess) has always seemed to me exceptionally good. Their health is less injured by riotous living and spirit-drinking than that of other people who equally indulge. I speak of the class who are patients at the Lock.

SECTION VI.

Compression of epigastrium by shoemakers.

Dyspepsia such as I have attributed to the pressure of stays in woman, are common in one class of men, namely, cobblers; arising in them from a cause of physiologically exactly the same nature, the compression of the epigastrium by the last on which the boot or shoe is worked. The following case shows it in an incipient stage.

CASE LXV.—Joseph James D—, aged 19, just out of his apprenticeship to a shoemaker, was admitted to St. Mary's Hospital under my care October 13th, 1861. He complained of weakness in the wrists, which became painful after work, and of constipation; he spoke also of pain in the chest, which induced us to examine his lungs. These, however, were found healthy, and he had no cough. On further inquiry it appeared that the pain he spoke of was in the epigastrium, and was increased by pressure and by taking food. Rest and quinine improved him rapidly, so that he was made an out-patient within a week.

The loss of power in the wrists, arising from atrophy of the muscles in overworked parts of persons whose stomachs do not take in a sufficient supply of nutriment, in some instances proceeds to a much greater degree; and there is a case recorded somewhere in my St. Mary's notebooks of a shoemaker in whom the two arms, even to the deltoids, were completely paralyzed

by overwork in giving that artistic jerk to the thread which these workmen affect. But I cannot lay my hand on it now. Perhaps I may find it by the time I come to a future chapter on the nervous symptoms produced by digestive defects. But remark how soon the evil had commenced, before the poor lad had scarcely entered independently upon the life he had chosen!

The next case exhibits a further stage of the same condition.

CASE LXVI.—Philip B—, aged 36, shoemaker, was admitted into St. Mary's under my care November 9th, 1855. He had not been in health for nine years, suffering from what he called "spasms in the chest," that is, pain across the epigastrium, and irrepressible paroxysms of belching. The pain in the epigastrium was always increased immediately after taking food, and was accompanied by a great secretion of gas. When he could get off some of this by eructation, the pain somewhat abated; but the eructations would sometimes continue as long as three hours. During the last nine months he had become emaciated, and felt a good deal of universal debility. The urine was smoky-colored, of the specific gravity only of 1.010, though natural in quantity and free from albumen; the sleep was broken; the appetite good. He stated that unless he took purgatives his bowels would remain unopened for a fortnight together.

Philip's first medicine was bismuth and iron. But the iron did not seem to agree with him; he got into a feverish catarrhal state and had sore throat. During this attack he was kept in bed, had six leeches and afterwards a blister applied on the epigastrium, he took a quarter of an ounce of castor oil occasionally. All this time, however, he was gaining flesh; so that between the 27th of November and the 10th of December he had gained four pounds in weight. And the urine was increasing in specific gravity, so that by the 1st of December it was 1.028, but was a little cloudy from lithates. After the acute febrile symptoms had abated he received much comfort from the following draught three times a day:—

R.—Misturæ Rhæi co., fl ʒj.
Tincturæ Opii, m̄v.
Acidi Gallici, gr. v.

He left on December 13th, much improved in health and spirits.

In this instance it will be seen that the evil was much more ingrained by time, and the symptoms were worse and more difficult of relief in proportion to the greater time it has lasted.

The intention of the draught was to soothe the over-sensitive nerves with the opium, at the same time that the gallic acid astringed the mucous membrane, and restrained the over-secretion of mucus, which the patient's general catarrhal diathesis

otherwise displayed rendered probable to be present in the stomach. The rhubarb I think was designed to prevent constipation arising from the other ingredients. As a rule I like aloes best for that purpose in gastric cases, and I do not know why I ordered rhubarb here.

Sometimes when lads begin shoemaking early, before the bones have got quite hard, a peculiar deformity is produced, which acts like a perpetual pair of stays for life.

CASE LXVII.—William H—, aged 25, bootmaker, was admitted to St. Mary's June 7th, 1856, for pain at the pit of the stomach which had been almost constant for four years, and was increasing. The pain was accompanied by a local sensation of cold, and what he described as a "dragging." He often felt nausea, but never actually vomited. On examination of the epigastrium there was seen an indentation of considerable depth, and deepest in the middle, which he said was caused by the wooden instrument used in bootmaking, at which he had worked "all his life." The part was painful on pressure. His general health did not seem much broken, and the specific gravity of the urine was 1.020. With rest, nitrate of bismuth, and iron, he lost his symptoms, and was discharged from care June 21st.

But of course it was to be expected that his symptoms would return; for these men spend fourteen hours a day with their heads bent down close to their knees, pressing a hard stick into the stomach; and the injury which was once done could not but be aggravated by time.

The final blow to the stomach given by this trade is exemplified in this next case.

CASE LXVIII.—James P—, a shoemaker, aged 37, was admitted to St. Mary's, May 4th, 1860. He said he had never been well since he was one-and-twenty. His bowels were never moved of their own accord, he occasionally vomited, and had a perpetual pain in the right side of the epigastrium, which he called his "liver." He continued in this state till 1855, when, as he was vomiting, there came up a sudden gush of blood. Since then, the same thing had happened five times, the last time the night before admission. He did not throw up any blood when in the ward, but his statement was confirmed by the passage of a considerable quantity, liquid and clotted, from the bowels. Acetate of lead stopped the hemorrhage, and by dint of complete rest and pepsine he was able to take the ordinary diet of meat and vegetables, with the addition of a pint of beef-tea at dinner, for a week before he went out on the 25th, taking quinine three times a day.

The rapid, though probably only temporary, relief of the pain in the epigastrium and the regained power of taking food, shows how much might be done in these cases by rationally removing the original cause of the complaint. No greater blessing to the artisan was ever invented than the Upright Shoemaker's Table, introduced by Mr. Sparkes Hall to the trade. At it the workman stands or sits on a higher stool at will, holding his work fixed by a strap and stirrup regulated by the foot. Thus all pressure on the epigastrium is avoided, and Mr. Hall tells me that many of his most skilled hands who used to be off work from illness nearly half their time, and driven to drink to drown pain the rest, can now earn daily wages, and are become temperate, rich men.

The difficulty lies in the change of method—by no means a light difficulty. A visit to the Egyptian room at the British Museum shows that shoemakers have worked in a doubled-up posture at least since the days of the Pharaohs, and we cannot expect them to alter in a moment what certainly has some conveniences. Moreover all do not suffer. A stomach in a perfectly robust condition probably can resist even this daily compression. But when occasionally it is joined to fusty cold workshops, long abstinence, tippling, accidental illness of any kind, then it tells chronically, and the injured part is unable to recover itself. These *dura ilia* make a bad use of their blessings by deterring the weaker vessel from the trouble of learning a new method, and are aided by the lazy conservatism natural to the ignorant. Still I think it is our bounden duty to advise all shoemakers we come across as patients to adopt the upright bench, and perhaps in time we may succeed.

I have not found this evil in tailors. They generally suffer from drinking and bad ventilation.

SECTION VII.

Solitude.

Eating in a dull heavy kind of way without enjoying it often produces dyspepsia in a moderate form.

CASE LXIX.—Rev. N. R.—, a bachelor of middle age, was my patient in the autumn of 1864, for flatulence of bowels accompanied by confusion of

intellect during the second stage of digestion, and sleeplessness. By regulation of the diet, and quinine, and strychnine, he got well then. In November, 1865, he came to me again, saying that when he dined in company he could digest anything, and never suffered, however rash he had been at table. But when he took his meals alone for several days together, his old symptoms of the previous year returned, and no carefulness or abstemiousness prevented them.

Sometimes the pain is more severe from a similar cause.

CASE LXX.—A scientific man of middle age, deeply occupied with his pursuits, and never in the habit of indulging in amusement of any kind, complained to me that when he dined alone, as he usually did on the plainest food, he invariably vomited afterwards. But that in dining out he never suffered even from nausea. At one time he used to read at meals, but that seemed to make no difference at all.

Which is waste of time, work or play? Truly sometimes one and sometimes the other, but each out of their due season and proportion. The epithet "frivolous" (from the same root as "frio" = what may be easily rubbed out and forgotten) is not necessarily depreciatory. Light thoughts, light occupations that leave no care or impression behind them, are good for mind and body and worldly estate.

SECTION VIII.

Intellectual exertion.

The overuse of the mind sometimes induces indigestion in those previously not very strong.

CASE LXXI.—Rev. G. B—, aged 50, after being invalided home from India, got well enough to take the post of secretary to a society. But the brain-fag consequent upon that, without any other change of his habits, brought on nocturnal flatulence, nightmare, and seminal emissions. And during the day his spirits were so depressed that existence was a burden. This was in November, 1862, and a month afterwards he came to report that assistance in his work had been granted him, and that he was quite set to rights, except a little weight at the epigastrium.

It is to be observed that what I am speaking of here is not the original condition of mind which was described as a cause of the indigestion of starchy food especially, in the last chapter (see Case XII., &c.), but rather the wrong mode of using it. Unavoidable evils were then described, the consequences of

which might be alleviated, but the causes were either past or irremediable. In this chapter I am tracing the complaints to habits which are voluntarily taken up, and can be laid down at will.

I do not believe it is the quantity, so much as the quality of intellectual occupation which does harm. Composition, the creation of thoughts, even the putting of old thoughts into new forms, is not, in my experience, injurious. Where it is enjoyed, I believe it a peculiarly healthy occupation. It is the dreary routine work, *invito genio* and against time, which knocks up a man's stomach.

But in reality I believe the last two cases are exceptional, and that you will more commonly find some other cause at work in those who accuse intellectual occupation. For example:—

CASE LXXII.—Joseph W—, an engineer past middle age, with the broad forehead, square jaw, and shrewd eye of a mind like the iron he bent to his will, came to me in March, 1863, complaining of flatulence, with spasmodic pain in the epigastrium, and that he was quite knocked up by the toil of invention, to which he attributed his bodily illness. But on inquiry I found that he had been stimulating thought by champagne luncheons, and that it was after these he felt distress.

SECTION IX.

Want of employment.

The concentration of the mind upon itself we are assured by psychologists will produce mental disease. I confess myself that I have some doubts whether we ought not rather to say that it makes evident and brings into prominence previously existing disease. Because the same class of observers generally also go on to say that the fixing of the mind on any portion of the body will cause morbid phenomena to be therein developed. Now this is an experiment I have often amused myself by trying in a leisure hour; I have looked at, thought about, argued about, and in imagination dissected, my finger tips, nose, epigastrium, knees, &c., till the power of attention was wearied out; but no pain, or redness, or throbbing, or swelling, no stiffness, or coldness, or anæsthesia, has followed. What really

happens, however, in consequence of a concentration of the mind upon the body is this—should there be already existing any slight morbid condition capable of declaring itself to the nervous system, but not in such a way as to draw off from other objects the engaged mind; then, should the attention be unfortunately attracted to this part, the pain is noticed, is in idea multiplied and exaggerated. Anxiety and distress follow attention, and then at last the bodily functions are interfered with (for these passions, as has been illustrated in the second chapter, lower the powers and secretions of the digestive canal), the saliva and gastric juice fail, and the digestion suffers. From thence perhaps, as a tertiary effect, may ensue deteriorated nutrition of the local injury.

CASE LXXIII.—An old blind soldier, who lived near the Chelsea Dispensary when I was physician there, used constantly for several years to come to me from time to time complaining of excruciating pain in the abdomen. He had his pension, and was comfortably off in circumstances. No one on looking at him could doubt the reality of his feelings; yet there was never anything in his state of health apparent to account for them. The only cause I could trace them to was his being occasionally left alone by his wife and family; and then his blindness prevented his mind being drawn off to surrounding objects, and he would sit still, allowing any little abdominal discomfort to be depicted in exaggerated colors on his vacant fancy. He had in truth always a little flatulence, but never the “excruciating pains,” except on these occasions.

I have not seen much of blind people, but such as come under my notice are always disposed to exaggerate in this way any slight bodily discomforts into real tortures. From want of mental distraction, their internal sensations occupy too prominent a place in their psychical life.

Just in the same way people who voluntarily deprive their minds of occupation, find out the existence of innumerable pains in various parts of their bodies; the anxiety and worry thus occasioned really does deprive them of sleep, injures their digestion, and by the time they are driven to the doctor makes them materially as well as mentally ill. Sometimes these pains arise from actual organic change which had existed for many years unnoticed, and therefore without effect on the general health, and unaffected by it. But when once it is thought

about so as to create anxiety, it feels the innutrition hence arising, and grows rapidly worse.

CASE LXXIV.—A paper-maker, utterly uneducated, though very wealthy, aged 70, was brought to me by his wife and doctor in March, 1861. He had had a slight catarrh of the bladder, following an old stricture, many years; but as long as he was in business he never suffered materially from it. Having made more money than he could possibly want, he thought he would retire and "enjoy himself." But alas, he had nothing to enjoy himself *with*; except indeed his money, which is not of much use without tastes to spend it upon. So he took to thinking about his health, considered what was wholesome and what not, what to eat, drink, and avoid, for the sake of his defective urinary organs. The consequence was that his digestion failed, he complained of weight after food, vertigo, flatulence, and "intolerable" pain in the epigastrium. His aspect, as he sat rubbing the pit of his stomach when introduced to me, was one of abject misery. The urine contained a little pus, but he made no complaint about his bladder. He had the white tongue of a nervous man, and his bowels were costive. My next report of him is dated August, 1862, when I saw him in much the same unhappy state of feeling. But the bladder had got a good deal worse; there was more pus and albumen in the urine, and the specific gravity was only 1.015. I do not detail the treatment, for it was various and useless; and a few weeks after his last visit I received a card from the family announcing his funeral.

As a more cheering illustration *per contra*, I will choose an instance of the same anatomical condition as the last, in order to show that urinary disease is not necessarily depressing to the mind.

CASE LXXV.—J. B.—, a confidential clerk at the India House, getting on for 60 years of age, was sent to me by Mr. Coulson in June, 1856. He had enlarged prostate and vesical catarrh, but managed to avoid all serious inconvenience in that quarter by using a catheter. Now and then his stomach got out of order, but he could generally trace that to a good dinner or some such social imprudence; and then his bladder discharged more pus. So he went on some years, till I began to observe he was coming to me rather more frequently, and that he had a care-cumbered face, leading me to ask him what he had been doing lately. "Doing? Nothing. I am a gentleman at large now—pensioned off." Poor Charles Lamb! also an India House clerk; I thought of him and his humorous pathos on being pensioned off, and said immediately that it would never answer, it was poison to mind and body. "Ah, there's a good deal in what you say: as the spring comes on I and Mrs. B. will take to gardening: she has a family taste that way." And to gardening they took, and I saw him much seldomer, and heard no complaints of his vesical troubles; though he dropped in at the end of 1864 to introduce a patient to me, and see how I was. I trust they still continue to plant their

cabbages and bud their roses, and to make wierd skeleton bouquets of dissected leaves for their friends, and to be as happy and as little ashamed as Adam and Eve in Milton.

Those in whom tastes have been implanted for simple amusements cannot be too grateful for them. And I hold it one of the wisest things we can do in busy middle age to keep up or acquire such tastes. When once the inevitable pensioning off comes, it is usually too late to go through the necessary education. I have, indeed, seen a diplomatist, who had held in his grasp the destiny of nations, commencing at sixty-five the study of Italian, for the sake of reading Dante; and I thought at the time it showed more courage even than his old trade of bullying into reason the masters of armies. Such courage is rare, and more generally the mind's mirror gets dimmer and dimmer, till there arrives with premature rapidity the state of things so graphically depicted in the last chapter of Ecclesiastes. I am sorry to say the stock example of this is a member of our own profession, Sir Astley Cooper, who, when in retirement satiated with wealth and honors, is described as looking over the trees of his park with a conviction that some day he should hang himself from one of them. He had wasted his life in routine work, and it was too late to educate the mind to anything else.

The class of patients instanced in the last two cases are such as have some structural disease, of which I have described the aggravation by idleness acting through the digestive organs. More common still are those who have no existing organic change in any part of the body; and in these the digestive organs act upon themselves only, and produce distress and functional derangement. A state of things arises pithily sketched by Dr. Markham, in a letter introducing a patient to me a few months ago—"He formerly was poor, worked hard, had plenty of appetite, little dinner, and little time to eat it; now he is rich, with lots of time and dinner, but no stomach."

It is not absolutely necessary to have been a hard worker first for idleness to lead the thoughts inwards to the digestion, and put it out of order. Some who have been Lotus-eaters all their lives, still do not get acclimatized.

CASE LXXXVI.—Miss M. J.—, aged about fifty-five, has as tough a constitution as most people I know of, and had consulted me about catarrhs or

some trifling ailments occasionally. When I was away from England in 1865, she took a whim to go and live at an hydropathic establishment. She was not hydropathized, and it is a pity she was not, for it would perhaps have kept her out of mischief. But she used to listen to the inmates talking about their insides, and having very limited mental though plenty of pecuniary resources, she had nothing else to think of. The consequence was she began to suffer from gastralgia, even after the excellent wholesome diet and fine air she was getting at the place; and when she came to London to consult me on my return she was seriously out of health, always feeling a weight at the epigastrium after meals, having acid eructations and sometimes vomiting, and the tongue appearing pale and coated. I made her leave the noxious moral atmosphere, and adopted the physically worse alternative of close London lodgings with their well-known greasy cookery. Then she engaged a companion of her own age and position to talk to, and aided by some quinine and strychnine soon got well enough to run over for a trip abroad, with a strict caution to keep clear of spas and invalids.

SECTION X.

Abuse of Purgatives.

There is no habit so pernicious to the gastric digestion as systematically taking purgative drugs. And there is none more common.

It is commenced sometimes from mere caprice and imitation.

CASE LXXVII.—I saw, last week, a fine, tall girl of seventeen, at home for a few days from school. Her mother noticing how pale and listless she was, inquired into her daily doings, and got out a confession that nearly all the scholars were addicted to drenching themselves with pills; this made them thirsty, and they topped up with another purgative, "lemon kali" (an adulterated bitartrate of potash) several times a day. As my young friend had never taken physic in her life, except a few homœopathic globules at a former school, and some conventional draughts during the measles, this discipline made her ill; and it opened my eyes to the ease with which bad habits may be acquired. Even in her case it had begun to produce a sensitiveness to the presence of anything in the excretory viscera, which very quickly grows in intensity, and renders the abstinence from purgatives soon a positive deprivation.

It is the increase of sensitiveness which does the harm; for shortly this sensitiveness, commencing probably in the intestines, spreads to the stomach, and the presence of food there gives pain and cannot be borne for the time requisite to normal digestion. The food being undigested, costiveness results; an increased demand for purgatives is made; sometimes even a medical man

is induced to order them or to sanction them, and the difficulty of breaking the habit becomes really formidable. I found even a homœopathic physician, who placed his daughter under my care, had been persuaded to allow the growth in her of this living on poison.

The dyspepsia induced by purgatives is all the more serious in that it affects the most important classes of ailments. In Case XXXIX, an illustration is given of the indigestion of fat; in Case XLIX, of the indigestion of meat arising from this cause.

There is usually great difficulty in eliciting evidence of purgative habits; all the more so the higher in rank and more educated the victims are. Now and then a sensible country girl will make a confession which puts to shame her more refined sisters:—

CASE LXXVIII.—Emma W—, aged 25, a well-built strong countrywoman, had come to London in the summer of 1851 as a nurse to the children of an old friend of mine. Since then she had suffered from pain in the epigastrium (originally excited by tight lacing), waterbrash and debility. Her tongue and face were getting anæmic. For some months her fellow-servants and mistress had been dosing her with purgatives. She said she certainly did feel lighter after she took them, but in spite of that she had sense to remark that she was getting worse and worse, and could not but attribute it to the drugs. Yet she fancied she could not do without them, and feared she should be obliged to leave London and her comfortable place. This was on December 4th that she was sent to me. Before the end of the month, by simply leaving off purgatives gradually, and taking a little iron, she lost her gastralgia and other stomach symptoms, gained strength and spirits, and remained in London many years a valuable servant, till junior branches of the family left the nursery.

In the above case it is mentioned that purgatives were left off "*gradually*," this I usually accomplish by giving moderate doses of aloes and myrrh in pill, and with each change of prescription increasing the proportion of myrrh and diminishing that of aloes, then dividing the pill into two, and at last omitting it altogether. Another expedient is to recommend small cold water enemata which are not really purgative at all, and allow the bowels to act spontaneously, at the same time as they cool the rectum and take off any feeling of congestion and tenesmus, acting in fact as a sort of shower-bath.

I have known the continued use of purgatives kept up by a medical practitioner with a design of making the fecal evacuations of his patient more healthy in aspect.

CASE LXXIX.—I was summoned in April, 1861, some distance into the country to see a young married woman, whom I found confined to bed with hysterical paralysis of the lower extremities and occasional vomiting. As my coming had been debated and arranged some days, I found prepared for my reception a long row of vessels, set in order of time, containing what had passed from the bowels. Each was more unnatural, more fetid, more ragged, and with more undigested matter in it than the former. The medical attendant had been purging vigorously, and intended to go on purging vigorously, in spite of the obstinacy with which the patient grew worse. When the gray powder, &c., was exchanged for beef-tea enemata, milk, pepsine, and mutton chops, a rapid improvement followed. In subsequent letters I heard no more of foul stools.

There is a very curious superstition about the use of mercurial purgatives. They are supposed to make the alvine excretion more healthy, though the only visible result is its becoming more abnormal with each dose. They are supposed to do good by "acting on the liver," whether the liver is acting too little or too much. They are supposed to "act on the liver," though it has been shown by Dr. Scott's experiments¹ that the quantity of bile is not increased, nay, is rather diminished when mercury is taken. All that mercury can be really seen to effect on the hepatic function is a poisoning of the bile, so as to prevent its absorption by the ilia, and to cause it to be rejected in a liquid form *per anum*; and that is a very doubtful advantage in most cases.

The only effect at all desirable following mercurial purgation, and which in fact seems to constitute for patients the attraction to its use, is the relief of certain cerebral symptoms, giddiness, *muscæ volitantes*, dark globes in the sight, singing in the ears, &c., which result from excess of venous over arterial blood in the brain. It acts in this case as a destructive upon the venous blood, and adjusts the balance by subtraction. Time after time as the rough expedient is resorted to, the strength is lessened by it, and the necessity for its use appears greater. The only true way of restoring the circulation to its normal condition is by addition, by increasing the supply of new-made blood to the arteries.

¹ Beale's "Archives," vol. i. p. 209.

SECTION XI.

Abuse of Alcohol.

The immediate effect of diluted alcohol on mucous membranes is first to dry them by staying the aqueous exhalation, and shortly to damp them with an abnormal formation of mucus, to retard the capillary circulation, and to deaden the sensibility of the nerves. The last action is its use. Where there is risk to health from undue sensitiveness, alcohol in moderation is an invaluable remedy. It may be considered as an antidote to the condition discussed in the last section; and if a man were condemned to take unnecessary purgatives, he could not do better for his stomach than counteract part of their evil effect by mixing them with alcohol. Experience seems to have led to the same conclusion as science, and we find the most popular drenching recipes have either alcohol or some equivalent anæsthetic in their composition. It is equally antidotal where the sensitiveness is the manifestation of weakness in the nervous system, either from exhaustion or imperfection. And thus it becomes the daily food or daily physic (I care not which it is called), of those whose daily life brings their nerves into this state.

To the health of the bulk of mankind the habitual moderate use of alcohol is probably quite indifferent. One day they may want a little, and therefore be the better for it; another day they would be in a more perfect condition without it. So a balance is struck by the habitual users; and their chief argument in favor of fermented liquids remains the unanswerable one *that they are nice*. No mean argument either, for it weighed with our Divine Master, when He first showed His power by treating the merry-makers of Cana to better wine than they were accustomed to.

The effects of habitual excess (which in some people is taking any alcohol at all, in others is taking what is universally allowed to be "too much,") is on the gastric area very similar to that of any other anæsthetic. A partial paralysis of it is induced, it ceases more and more to perform its peculiar functions for the owner; "he cannot eat but little meat, his stomach is not good," though he may still digest vegetables and feel a relief from filling the void with them.

If the appetite for food remains large, the weakened walls of the receptacle are liable to yield to the dilatation, as in the following instance.

CASE LXXX.—Mr. F—, a burly farmer of middle age, came to me in December, 1856, complaining of a constant sinking at the epigastrium, relieved indeed for a short time by taking food, and partially by a glass of spirits. He ate, however, without appetite, and did not even enjoy his brandy, for it had become a mere matter of supposed necessity with him. Latterly animal food caused disgust and nausea, his bowels, from being constive, had become relaxed, with yeasty fermenting stools, and he had got very down-hearted about himself. The condition had, however, been coming on very gradually he knew not how many years, and he was without difficulty brought to see the connection it had with a habit of taking spirits between meals.

The tongue was coated with patches, showing sharp defined edges, of epithelium on a bright red base. It was described as being more generally all red, like a beefsteak. The tympanitic resonance on percussion of the stomach extended right up into the cardiac region and down nearly to the navel, and laterally in proportion; and the abdomen was prominent as well from accumulation of fat in the omentum and parietes.

I put him on a Banting diet, with at first some liquor potassæ to decrease his corpulence, and I ordered fifteen grains of Bondault's pepsine powder to be taken with animal food to assist in its digestion. I persuaded him also to promise that no spirituous liquor should be taken between meals; but he said he had sooner die than surrender a glass of brandy and water at supper.

I must confess I had some doubts about the observance of the promise. Yet I was wrong; he did leave off spirits, and he did get much better and more active in business, and continued so for nearly two years. Then some temptation arose, he resumed his old habits, and was brought up again to London in 1858, in the same state as before. The same advice was given, but I have no record of the result.

Persons with dilated stomachs are very apt to become obese, though the flesh digested is not sufficient to sustain the muscular strength. And this sort of obesity is very difficult to manage, from the impediment which the muscular weakness offers to taking exercise.

In woman, perhaps from the bondage of the dress, the stomach does not in my experience become dilated from the paralyzed condition induced by alcohol. The following case represents the more common injury done to the viscus.

CASE LXXXI.—Mrs. P—, aged 33, came under my care October 3d, 1864. She lived in the country in easy circumstances, had no family or society to

attend to, and had become lazy, fat, flatulent, and low-spirited. For several years she had been gradually getting into the habit of alleviating her uncomfortable sensations by small doses of brandy, which she took morning, noon, and night, but never in such a quantity as to get into her head. The reason of her coming to me was the inability, which was growing upon her, of keeping the smallest quantity of food upon her stomach. It was vomited almost immediately. She was very hysterical, and the catamenia was irregular. Leaving off brandy and taking some valerian and shower-baths stayed the vomiting; but two months afterwards I was obliged to go abroad, and lost sight of her.

The sudden leaving off excess of stimulants will in elderly persons sometimes cause disturbed cardiac action, even when the gastric symptoms are relieved by it.

CASE LXXXII.—Mrs. B—, an elderly lady habitually rather short-winded, came to me on the 26th of October, 1864. She was suffering from loss of appetite, with frequent nausea and vomiting, which I attributed to a habit recently acquired of taking brandy between meals. The pulse was then regular. I urged her to give up the dangerous habit forthwith, and saw her again on the 2d of November. The nausea and vomiting had ceased, and she felt some return of appetite. But she had a new sensation of sinking at the epigastrium, and was shorter of breath. On examination of the pulse I found it irregular and intermittent. The heart-sounds were normal. I gave her some valerian, and on the 18th found her still bravely resisting the temptation to brandy, and dismissed her with a prescription for some quinine and strychnine.

I am used to quote to such patients as the last *in terrorem* an experience I once had of want of resolution in breaking off dram drinking—an experience happily rare, and not cited here as illustrative of a class, but still instructive as an extreme warning.

CASE LXXXIII.—In September, 1857, I was called by Dr. Jephson to a consultation in the case of an unfortunate middle-aged woman, who was dying prostrated by uninterrupted vomiting. It is needless to detail the symptoms, which were those of simply retching and sinking, and the nature of the case was made apparent by her desiring her maid to bring her a glass of brandy even while I was speaking to her. Our attempts to feed her with beef-tea enemata and opium were unavailing, and she died next morning.

She told me the habit had been acquired only the previous year, while staying with some friends in Scotland at their shootings, where a nip of whisky was the regular preparative for breakfast.

But dram-drinking is by no means confined to uneducated

persons, those whose "talk is of bullocks" or idle women. I am ashamed to say I have been consulted about its consequences by several members of our own profession, who ought to know better and set a better example. *Quis custodiet ipsos custodes?* They tell me the temptation is very great in country practice, sitting in tedious conclave in lone farmhouses during a lingering labor, or watching some long-dying patient with no person that can understand your thoughts within many miles. There is nothing else to do but drink; and then the next day you have to be at work at the usual early hour, and the work can hardly be done without a hair of the dog that bit you.

The last sentence, expressing the necessity for staving off alcoholic reaction, reminds me to mention a test which I am used to apply to discover whether the amount of alcohol taken is such as really to injure the stomach. I ask whether the patient ever is in the habit of taking it in the forenoon. If so, I at once feel sure that the stomach has suffered. When a considerable interval intervenes between the indulgences, and the reaction is allowed to have its way till ordinary digestion is restored, the constitution may very often be still uninjured. But I have not yet met with a forenoon tippler, even though he never got drunk in his life, without a condition of stomach which most infallibly shortened his days. I find it a great advantage in the selection of lives for insurance to substitute a pointed question on this head for the usual aimless inquiry whether the proposer is "sober and temperate." Nobody is anything else, of course; and the answer is a mere declaration of opinion. But "do you take spirits in the forenoon? Is that a habit?" require categorical statements of facts, which if false would vitiate the policy.

The way in which life is shortened by this stomach affection is generally secondarily through the liver, originating anæmia, and ascites: sometimes through the pancreas; when the emaciated gin drinker, such as Hogarth drew, is produced. More rarely the kidneys break down, and Bright's disease arises. In fact the nearer, physiologically speaking, the organ to the stomach the more likely it is to suffer.

When a patient is persuaded to give up dram-drinking, he often has such a dreadful depression of spirits that his resolution

is apt to give way, though he is convinced he is acting right. And sometimes he may have a kind of delirium tremens from the sudden shock, before he can get into the temperate habit of taking stimulants only at dinner, or of giving them up altogether, according to the nature of the case. Still it is best to enforce the absolute rule of no alcohol between meals, and to supply its place temporarily by an ether and ammonia draught, then by ammonia alone, or with a bitter, and then to stop it altogether.

SECTION XII.

Tobacco.

CASE LXXXIV.—Mr. William T—, aged apparently about 50, came to me in March, 1856, complaining of costiveness, pain in epigastrium about three hours after food, flatulence, and dryness of mouth. I could not find any deviation from wholesome habits of life except that he smoked a great deal of strong tobacco. And the event proved that to be the source of his dyspepsia, for by restricting himself to one cigar after breakfast, and taking some charcoal and soda, he came to me towards the end of the month much better.

This is the only case I can find where smoking alone could be proved the origin of dyspepsia. In every other instance which I have taken notes of, drinking was joined with it as the decided efficient cause, so that the cases prove nothing for scientific purposes: or else (as in Case LXI, for example) the accusation was shown to be a libel by the dyspepsia not ceasing when the alleged cause had been long removed. I must say I am surprised, for all medical writers seem to consider it a matter of course that the pleasures of the pipe have a special deleterious effect on the salivary glands and stomach. And I myself took the thing for granted till I came to review my experience, and drew out this solitary specimen, which, therefore, must not be considered as the type of a class.

The poison of tobacco smoke seems indeed to attack more particularly the nervous system. I have several examples of intermittent pulse, palpitation of the heart, shaky hands, nervousness, imaginary impotence, and the like, produced by it. But in none of these have the digestive powers been primarily,

or even secondarily, affected according to my notes, so that they have no bearing on the present subject of my pen.

In the shape of snuff tobacco is much more deleterious. The following case is typical:—

CASE LXXXV.—H. C—, a country surgeon, aged 45, complained to me that he was really becoming unable to follow his profession from excessive flatulence in the ilia. When he was talking to a patient the bowels would begin rumbling and rolling so that he felt ashamed to stay in the room. He was obliged several times a day to unbutton and lie with his abdomen up in the air. At night sleep was broken, and sometimes rendered impossible by the same nuisance. Curiously enough, when he sat up all night, say with a troublesome midwifery patient, he was not half so bad. While talking with me, I observed he took snuff several times, and on inquiry found he consumed nearly an ounce daily. He, of course, could not be unaware of the cause of his disease, but absolutely refused to give it up. He said life would not be worth having without it.

I am sorry to say he is not the only member of our profession who takes too much snuff. Nearly the whole of that large quantity goes into the stomach from the back of the nares, and one is only surprised that more decided poisoning does not follow.

I have never been able to persuade any one to surrender the indulgence; but one old snuffer told me he had broken himself of it by the aid of kitchen salt finely pounded, of which he mixed more and more daily with the contents of his box, till it was nearly all salt. Then he took plain salt, and soon gave that up. I have heard also of ginger being employed in the same manner. Another, who had acquired the habit at Cambridge many years ago, and did not like the look of it on leaving the University, used to carry for some time a vinaigrette of aromatic vinegar for the same purpose.

SECTION XIII.

Tea.

The following case, illustrative of the pernicious consequences of excessive tea-drinking, is extracted from my Clinical Lectures at St. Mary's Hospital.

CASE LXXXVI.—Maria D—, a spinster of thirty-two by her own confession, but probably older, has been a general servant in a light place for

seven years. She has been happy, and has enjoyed pretty good health, interrupted only by occasional headaches; but for some time lately things have seemed to annoy her more than they ought to do. Three months ago, she had a bad "bilious" headache, which was followed by some paroxysms of laughing and crying. Five weeks back she had an attack of diarrhoea, from which she got better, and went to work again in spite of weakness, for she was loath to let her mistress want her. But exertion was in vain, for she no sooner tried to clean a grate than she fell down speechless, and had a succession of hysterical fits, losing her senses, but not biting her tongue. Then she began vomiting everything she took, and this had been going on for three weeks, and seemed to amount to a complete rejection of all her food immediately it was swallowed. When we saw her, there was excessive flatulence, the air bursting up from the stomach in roaring eructations while one was talking to her.

In this woman, the effect of the wide pupil and sympathetic hemoptysis is not hidden even by the disfigurement of blear edges to the eyelids; and it quite accords with the droll earnestness of her manner, which increases gradually as you let her go on talking about herself, leaving no doubt of her strong hysterical diathesis.

As to cause, that is still more directly traceable to the stomach than even in the last case.¹ It would seem that for some years she has been becoming more and more addicted to tea-drinking. She confesses to caring for little else, so long as she could get her favorite food or physic—or poison—I do not know exactly how to call it. Her mistress was quite angry with her for eating so little meat; and, with a far-sighted economy not common in her class of life, took much trouble to keep up the health of a faithful servant. But the weakened stomach refused meat, and she was literally starving in the midst of abundance. (Nov. 1, 1861.)

Much ill health arises among women of the lower orders in this country from the custom of sluicing themselves with tea. I am not aware if similar results follow in Holland and Portugal, the only other tea-drinking populations in Europe. Want of appetite for the quantity of coarse albuminous food necessary to working people is induced. In the upper ranks not so much harm is done by the five o'clock kettle-drums and similar sloppy proceedings, now so common, because their bill of fare is more attractive to the palate, and they usually get as much flesh food as is good for them in spite of it. Besides which, educated persons have usually the instinct to stop in time a custom which really depends on a mere whim. Still it cannot under any circumstances be a wholesome habit.

¹ A very similar case not necessary to be repeated in this connection.

Tea seems more injurious to the stomach in the usual form of infusion than otherwise. I remember some years ago being puzzled in viewing lives for insurance by some singularly colored tongues which I saw in those who came before me. On inquiry, I found their occupation was "tea-tasting" for the greater part of the day. Now, tasting tea is performed partly by sipping some of the infusion, but principally by sniffing up the aroma into the nostrils and chewing a few leaves in the mouth. I was given to understand that they sometimes found themselves nervous after a long day's work, that possibly the hand might shake a little in those who worked too hard, and that the tongue acquired this curious smooth orange-tinted coating, but that the digestion and appetite did not suffer from the trade.

SECTION XIV.

Opium.

An occasional effect of the salts of opium on the stomach is exhibited in the following case:—

CASE LXXXVII.—Jane B—, a domestic servant, thirty-seven years of age, was under my care at St. Mary's for some painful tumors of the abdomen affecting the uterus and bladder, in March, 1861. On account of the pain, she was ordered a grain of acetate of morphia every night. She had never previously had any narcotics. She only took one dose, for that was followed by vomiting, very severe during the night, and recurring at intervals during the next four days.

The possibility of an idiosyncrasy of this sort is no reason for shrinking from the essay of a good and useful medicine, but it is well to know that it may occur.

The more chronic effects upon the organ are shown in the next:—

CASE LXXXVIII.—August 12th, 1853.—George N—, an assistant-surgeon, aged 35, states that for eight years he has been in the habit of taking large quantities of opium. He began the practice in the first instance to prevent his feeling the want of food, when, as a surgeon's assistant, he was obliged to wait several hours without anything to eat. He at first confined himself to twenty drops of laudanum a day; but he gradually increased the amount till he finished a fluidounce of laudanum daily, and quarter of an ounce of crude opium in addition weekly. He tried several times to leave it

off, but was prevented by the nausea and pain in the epigastrium which he experienced. He had lost much flesh, and got miserably weak; but he probably would have gone on with his poison had he not been frightened by a numbness and partial paralysis of the left arm, and a loss of memory, which made him think he was going to have a stroke, and caused him to put himself under my care.

I immediately restricted him to one grain of opium at night, and consequently found him next day in miserable plight, vomiting, with pain in the epigastrium, and with a most melancholy aspect. I gave him strong beef-tea and port wine, but got afraid next day that he would slip through my fingers, and so I added some chloroform draughts. These relieved the sickness. By the 17th he began to get better, and the chloroform could then be omitted. On the 20th he felt very sinking for the want of it, but yet fancied he was recovering his appetite. He had, at his own request, a mutton chop and half a pint of porter. On the 22d he remarked his memory was improved, and he got up and dressed. Then his bowels got irregular, and following that lead I was able to restrict the quantity of opium to what he had in some chalk and opium powders, ordered to be taken when there was diarrhœa. By September 1st he was able to leave it off entirely and take care of himself.

It appears from this to be the digestion of meat and fat which is mainly impeded by opium. It requires, however, to be taken in great excess for the effect to be produced.

And even then the result is not by any means immediate. That is shown by the case quoted; and I remember also, in 1838 or 9, a sweeper of a lucrative crossing coming to swear an affidavit before my father as a magistrate that the bearer of the said affidavit was in the habit of using two drachms of solid opium daily. The reason of this measure was that the shop where he was accustomed to deal for the drug had changed hands, and the new-comers refused to serve him with such a dangerous quantity. He was nigh crazy with the restriction, but armed with his legal document he felt safe for the future, and I used to see him at his post many years afterwards.

On the whole, opium-eating does less harm than is generally supposed—very often much less harm than the pains which it is taken to counteract. The great objection to it seems to be the difficulty of leaving it off, when, as in the case of the surgeon's assistant, it had from its monstrous excess begun to tell on the health. But this difficulty has been very much exaggerated, as well as the temporary pleasures of indulgence, from

the description having fallen into the hands of the imaginative De Quincey—a man whose world was in himself, and whose whole biography, when published, let us into the secret of “The English Opium-Eater” being really a work of fancy. The same may be said of Coleridge’s “Recollections.” I find in my notes a special memorandum of the scorn with which the difficulty was treated by a genuine strong-minded man.

CASE LXXXIX.—During the year 1859 I saw from time to time, for some trifling ailments of which I have no accurate record, Captain B—, aged 72, a fine, hearty, God-fearing sailor of the old school. He told me that twice in his life he had been a decided opium-eater, taking as much as a drachm in solid form daily. I expressed my surprise at his having given up the practice, which surprise he did not at all understand, saying, “Why, I should be ashamed of both my philosophy and my religion, and turn skeptic, if either singly would not strengthen me with resolution enough for that.” The occasion for which he took the opium, some trying mental circumstances, having passed away, he diminished the quantity by five grains daily till he ceased entirely; and I must say his constitution appeared none the worse. I hear from his daughter he is still alive and well at 79.

When opium is given medicinally, that is for the relief of certain bodily or mental pains, and when it succeeds in relieving those pains, it does not seem to produce its special toxical effects: where it is really wanted, it rarely does harm. For instance, in inflammation of the serous membranes, as pericarditis, I have given to young persons who never took it before as much as three grains every three hours, without producing constipation or over-sleepiness till such time as the inflammation had subsided. (See “Lectures chiefly Clinical,” Lect. XV, “On Pericarditis.”) Of course I did not arrive at this quantity all at once, but began with a grain or a grain and a half, and increased rapidly.

I have myself taken opium for the relief of various inconveniences arising from an amputated limb, but I have never felt the slightest temptation to continue its use beyond the necessary period, or any inconvenience from leaving it off. The box stands alongside of my razors, and I do not feel one more dangerous than the other.

It is only when taken in great excess, or when persisted in, spite of warning, that opium seems seriously detrimental to the digestion.

All the habits in this chapter instanced as causes of indigestion are voluntary, and capable of being changed. The cure, therefore, of the indigestion lies first and foremost in that change. It must be made a *sine quâ non* of the treatment by every honest practitioner. In aid of that I have given a few hints in passing, but let it be understood that these expedients are to be only temporary ; the effect is finally to be removed by removing the cause.

CHAPTER IV.

ABDOMINAL PAINS.

SECTION 1.—Heartburn. SECTION 2.—Acidity. SECTION 3.—Waterbrash. SECTION 4.—Spasm. SECTION 5.—Gripes. SECTION 6.—Weight. SECTION 7.—Wearing pain. SECTION 8.—Soreness on pressure. SECTION 9.—Anomalous pains.

IN most notes of cases previously used in illustration of my subject pains or discomforts are stated to have been felt in the epigastrium or its immediate neighborhood, without their nature being particularly detailed. Either they were not severe enough to affect the general treatment, and so their form was not noticed; or they could not be clearly made out from the patient's words; or the record was incomplete in this respect, though full enough for the immediate purpose of its citation.

But a little care will enable the observer to distinguish considerable differences in these pains—differences which often may modify our diagnosis of the anatomical state of the parts, our prognosis, and our treatment.

I have enumerated in the table of contents of the chapter the names which I shall use in describing them in detail. I prefer these words to Greek or Latin compounds which profess to include them. The artificially built-up terms have, indeed, a show of science, but are not at all more accurate in reality, and much less graphic than those engendered by daily use.

SECTION I.

Heartburn.

Heartburn is a painful sensation, resembling that produced by swallowing something very hot, which arises at a certain interval after food in the upper part and towards the left side of the pit of the stomach. It runs in paroxysms at the back of the

breast-bone up the course of the œsophagus, and each paroxysm often passes off with a feeling as if hot smoke had escaped into the mouth. The pain of pure heartburn is not caused or increased by pressure.

There is in heartburn often a temporary salivation, and the secretion from the glands being voluntarily swallowed somewhat relieves (by its slight alkaline reaction, probably) the discomfort at the cardia; but if it is spat out, no relief follows. An arrest of the passage of this augmented secretion into the stomach will be shortly described under the heading of "Water-brash," in a future section. Though the sensation is that of a cramp, and the œsophagus is a muscular organ, I do not think there is any real tonic contraction of the fibres. There is no movement in the throat, such as may be readily felt on voluntarily gulping. There is certainly no visible contraction of the back of the fauces. Indeed, when the sensation gets there, it is rather one of relaxation, as if smoke escaped, say the patients. Moreover, if a little fluid be swallowed, its passage is not resisted by any stricture. It appears to me to be a subjective perturbation of sensibility, rather than of contractility, in the milder cases called "heartburn." Where there is a real spasm, "waterbrash" is produced, as I will explain under that heading.

Though this morbid phenomenon is manifested by the œsophagus, its causes do not lie *in* the œsophagus. Cancer, ulceration, or stricture of that organ, do not originate it in the majority of cases of these lesions, whereas it is a very common consequence of the slighter morbid conditions of the stomach. We may remark that it is easier produced by general than by local states of the viscus, and rather by slight than by severe derangements. We constantly find cancerous tumors and considerable ulcerations in the gastric walls without any such œsophageal symptom at all; whereas a catarrh, a mucous flux, and more commonly still simple atony of the stomach, seldom exist long without it. This would seem to show that a certain amount of health, as well as a certain amount of disease, is necessary to heartburn.

From the effects which alkalies have in allaying temporarily this pain, it may be inferred to arise from the action of the acid contents of the stomach on the cardiac and œsophageal nerves. It is true the gastric mucous membrane itself does not imme-

diately suffer from acid; it secretes acid,¹ and bears acid in contact with its coats, without inconvenience. The gullet, too, will do so for a short time; swallowing a mouthful of sour victuals or drink gives a healthy man no immediate discomfort. But we may remark that many influences which, when intermittent and alternated with rest, are indifferent or even pleasant to the sensory nerves, become exquisitely painful, and may even cause material disease of tissue, when long continued. For example, the immersion of a limb in water a few degrees below the temperature of the air is not disagreeable, and may be borne with intermissions for any length of time; but it becomes absolute torture if persisted in without an interval of rest or reaction. A moderate degree of pressure, if continued too long, will cause first pain, then gangrene or atrophy. A continued dribbling of feces will make the anus sore—a continual running from the nose excoriate the nares, &c., though we hardly notice it when lasting only an ordinary time. Just in the same way we must look for a quite different class of consequences from the intermittent and from the continued action of acids on the sensory portions of the pneumogastric. But when we trace heartburn to the impression of acid on the œsophageal and cardiac plexus, we do not necessarily imply that the acid (normal or abnormal) is in excess. It very often is not so; and we must refer the symptoms to over-sensibility, that is, to the sensibility of a normally insensitive part, which, I may remark in passing, is always a painful sensibility.

We thus arrive at two immediate causes of the morbid phenomenon in question:—

- 1st. Too long-continued acidity of the stomach.
- 2d. Over-sensitiveness of the cardiac and œsophageal nerves.

¹ There appears no doubt about gastric juice being *secreted* acid, and becoming neutral only from mixture with saliva. See the experiments of Drs. Bidder, Schmidt, Grünewaldt, and Schröder, compared in "Digestion and its Derangements," chap iv; and "Experiments on Digestion," by Dr. F. G. Smith (Philadelphia, 1856). This last-named renewal of observations on a patient with gastric fistula, formerly servant to Dr. Beaumont, seems to show conclusively that in the human subject the acid secreted is not hydrochloric, but probably lactic. The explanation of finding hydrochloric acid in gastric juice is that lactic acid in a nascent state decomposes the chloride of sodium contained in all animal fluids.

CASE XC.—Miss K—, aged 40, consulted me in April, 1857, about an intermittent hemicrania which had come on recently through living in an aguish district. She had a look of chronic invalidism more than was justified by the recent malarious infection, and on inquiry I found that for many years she had suffered from what she called “risings in the throat,” which came on about three hours after meals. Dinner was the worst meal for this. If nothing came up, as was usually the case, the “risings” continued two hours or more, and went away gradually. But if by a semi-voluntary effort she turned the “rising” into an ejection of a small quantity of food and air relief followed. On these occasions what she brought up was very acid to taste and smell. She had been physicked at various times in previous years for this heartburn without benefit, and had learnt to bear it. She found, indeed, that soda gave temporary ease; but fancied the symptoms were aggravated by a persistence in the remedy. She confessed, however, that the quinine I gave her to cure the hemicrania did the heartburn good also.

By three hours after meals the stomach ought so far to have emptied itself that the cardia should not be distended, and the orifice, relieved of the pressure of acid matters, should be enjoying the change of a trickling flow of alkaline saliva. Though the general contents of the stomach may, and indeed ought, to remain acid longer than that, yet the orifice of the œsophagus requires a period of alkalinity, and suffers if it does not get some.

Note, that the bringing up a small quantity relieved, because it brought the stomach into a normal condition as to contents.

Note, that what is brought up in heartburn is acid, showing a free communication with the stomach, and therefore that the œsophagus is pervious, not spasmodically contracted, as the patient's sensations might lead him to believe.

The condition of the stomach in this form of heartburn would seem to be one of atonic sluggishness, by which its normally acid contents are detained too long in their passage.

It is the most common form, and is often called “acidity,” from the taste of the ejecta, of course sour from a sour viscus, which are thrown up in small quantities sometimes. There is no objection to the name, if it be remembered that it means merely acidity out of place or too long-continued, and be not allowed to lead to our viewing the normally acid state of the gastric contents as an evil to be combated. I have indeed heard physiologists deride the idea of taking medicines for “acidity,” as if it implied our ignorance of the fact of the stomach being

normally acid, especially at its most comfortable times. The best answer to them is that we give medicine for acidity of *mouth*, which they cannot assert to be normal. It is a superficial answer, but the objection is superficial also.

The time at which heartburn occurs varies in general from a quarter of an hour to three hours after meals, and in the same patient will often have this range, as has been described in the typical cases related. The nearer it occurs to the meal the more is it due to over-sensitiveness of nerve; the further off the more to slow digestion and consequent acidity. Sometimes it is later in supervention.

CASE XCI.—Mr. John H—, aged 42, came to me February 7th, 1866, complaining of pain at the epigastrium towards the left side, rising up in paroxysms to the fauces, and which was shown to be only heartburn by the absence of tenderness on pressure. He declares it does not come on till full four hours after food, and it passes into hunger for the next meal.

Sometimes the patients will say they have “pain *before* food,” which pain on inquiry turns out to be postponed heartburn arising from the last meal.

CASE XCII.—Rev. E. M—, aged 26, has worked so hard to raise himself to be fellow and tutor of his college that he has injured his digestion. The false appetite which intellectual exertion brought on, made him overload the stomach at dinner with more than it could part with by next meal. This induced a pain not exactly like that of hunger before each meal, accompanied by a sensation as of something rising up into the fauces. No vomiting or eructation, though the stomach evidently was not empty. He had, besides, some curious nervous symptoms, for which I gave him quinine and strychnine, and he got better of all together.

Though doubtless the largeness of the meal contributes seriously to the severity of the heartburn with acidity, it is by no means an essential in its production.

CASE XCIII.—During 1861 and 1862 I attended the wife of a retired Anglo-Indian physician, aged about 40, for general sluggishness of the alimentary canal, accompanied by a tendency to mucous discharge *per anum*. She suffered at first a great deal from “acidity” about three hours after meals. She constantly averred, and indeed at my request subjected the matter to the test of experiment, that a small quantity of bread, or any other simple food, brought on the acidity as certainly as a full meal. That this was due to slug-

gish action of the gastric muscular fibres was evidenced by her deriving benefit from strychnine. She stated that she never had dysenteric fever.

Whether the sluggishness of the stomach is caused in these cases by the adherence of the mucus to its coats, or whether the mucus depends on the sluggishness, or whether they are both dependent on some deeper diathesis, I cannot determine. But certainly the phenomena are very closely associated.

We are apt in persons who have passed a portion of their lives in India to derive these chronic conditions from previous acute illnesses incidental to the climate. One can easily understand that acute inflammation of the bowels and its necessary treatment must leave behind them an injured mucous membrane. But such cases as XCIII show that it may be independent.

This form of heartburn is best treated temporarily by alkalies, aided by a spare meat diet; and then by the strychnine and quinine recommended in a former chapter as the standard treatment of indigestion.

It is almost as common in practice, especially among the educated classes, to find heartburn complained of as coming on within the first hour after meals. It cannot in such circumstances be debited to too prolonged exposure of the nerves to acid, for it would be exceedingly abnormal if the cardia were not acid at that period. We must attribute it to over-sensitive-ness, and treat it accordingly.

CASE XCIV.—Henry S—, aged about 40, a solicitor in large country practice, came to me in March, 1856, complaining, among other things, of heartburn commencing within an hour of every meal. He had sometimes made a strong effort at eructation and brought up some of the contents of the stomach, but it gave him no relief. What he brought up did not taste particularly sour, and consisted of whatever he had eaten. I prescribed him a course of hydrocyanic acid (℥iv in Infusion of Gentian three times a day). He continued to take that till quite well, and remained well till a hasty journey to Vienna in the autumn of 1860 brought on an attack of diarrhœa and great prostration. After this his old symptoms returned, and were again appeased by hydrocyanic acid and a blister to the scrobiculus cordis.

It is among anxious sensitive persons that we usually find this kind of heartburn. It is best treated with a reference in the mind to its pathology, namely, by local anæsthetics. Such is a course of hydrocyanic acid, and such is the external appli-

cation of a blister. It is true that the administration of carbonated alkalies will sometimes relieve the symptom for a time, for the carbonic acid liberated by the normal acid of the stomach is a calnative to the mucous surfaces; but that relief is exceedingly temporary, and the alkali interferes with the digestion of the meat by the gastric juice. I have also given mineral acids with some advantage in these cases, but not with such permanent benefit as hydrocyanic acid. That medicine often, as in the case quoted, will render unnecessary the after-treatment by quinine and strychnine.

I have spoken of alkalies as a temporary palliative in heart-burn. There is another way in which they are sometimes employed with advantage, but which requires considerable judgment and care in the medical adviser, and must not be rashly left to the patient, or more harm than good may ensue. I refer to their administration in a continuous course. I find that I adopt this plan less frequently than I used to do, others proving equally efficacious and more lasting in their effects.

The test of benefit being derived from a course of alkali is the dose not requiring to be increased as the patient goes on taking it, but on the contrary being capable of being diminished gradually, while relief continues still to be experienced. This shows that the real health of the stomach is being restored; that the effect of alkali pointed out by the experiments of M. Claude Bernard, namely, the augmentation of the gastric juice, is being arrived at, and that consequently a renewal of life is developed.

But should the patient be tempted by experience to take larger and larger doses, it is evident that the palliation is simply a neutralization of the normal acid of the gastric contents. This induces in the end weakness and over-sensitiveness, and such patients will in a very short time appear again under medical care, usually in a worse condition with each recurrence; or they will become chronic druggers for life, or perhaps be finally cured by some clever quack who amuses their fancy while he makes them abstain from active remedies. Such cases as these make the fortune of Metallic Tractors, Galvanic Baths, Mesmeric Infirmarys, and of not a few other well-puffed "cures."

We must not, however, let ourselves be prejudiced against

courses of mineral waters by the little packets of nonsense, brought by post under various foreign stamps, which set forth in laughable Anglo-French the omnipotence of their own "Abana and Pharpar." Patients get there something more than the many-tested springs—Air, Rest, Gentle Exercise, New Diet, Change of Scene, Freedom from Domestic Nagging, and perhaps Domestic Physicking, &c. These would do good, were the waters even moderately poisonous. But the fact is they are not at all poisonous, and many of them contain not only carbonic acid, which is a gentle normal anæsthetic to mucous membrane, but also carbonate of soda, which rightly administered has been shown capable of increasing the digestive powers of the stomach. The right administration consists in giving it not when the organ is full, and ought to be acid, but when it has parted with nearly all its contents—in fact, at the time usually ordered by managers of alkaline spas.

When, therefore, I wish to prescribe a course of alkali, I think a better plan cannot be devised than sending the patient to a spa containing that ingredient. Of the two most famous, Vichy and Vals, I prefer the latter, because the water contains so much iron (retained in a state of carbonate by the excess of carbonic acid), which assists much in the restoration of strength to the stomach. Moreover, Vals is further off, and in the neighborhood of beautiful and romantic scenery, enough to tempt the patients to a tour, and to help them to shake off the invalidism which associating with sick people at the spa is apt to induce.

In reflecting upon the purely medicinal benefits conferred by spas, we must remember not to attribute all to the salts contained therein. Water itself is an important constituent of the gastric juice and an augment to its quantity and power. Small quantities taken cold act as a tonic shower-bath to the gastric nerves, and remove local congestion; but if much is drunk at a time, the great depression of temperature lowers their vitality. This consideration may aid us in prescribing the temperature at which mineral waters are to be taken—small doses cold, large doses tepid.

Sponging the body with cold sea-water, and the shower-bath, are often most useful remedies, acting doubtless in a great mea-

sure through the general system. But cold sponging or douching the epigastrium, which may be easily managed sitting in a hip-bath, appears to have a special local action, and certainly does still more good.

The tonics which must follow up this special medication may be varied according to the case and the patient's convenience; but, as a general rule, I find none do better than strychnine and quinine, alternated with occasional short courses of iron. The last named, but not so well the former drugs, can be combined with the alkaline course.

To an over-sensitive stomach I have often found carbonic acid a decided calmative. A draught of water purely impregnated with fixed air by one of the domestic machines in common use is as good as soda.

It will be easily seen, both from the sketch I have given of my view of the pathology of the disorder, and from the details of treatment which I have advocated, that my aim is not to chemically neutralize, counteract, or even prevent the formation of acid. My object is the renewing to active life of the languid organs which are detaining that acid, and the blunting of the over-sensitiveness of the nerves by strengthening them.

SECTION II.

Acidity.

Acidity is often misunderstood. I have heard it spoken of as "an excess of gastric juice," "excess of action in the stomach"—that is to say, too much of a vital act, too much life. Such a mode of speaking, if it leads to anything, must lead to faulty thinking and bad treatment. Instead of being an excess of gastric juice, acidity is itself a proof of deficiency.

CASE XCV.—A medical man complained to me not long ago of what he called "over-abundance of gastric juice."—"Why do you call it over-abundance of gastric juice?"—"Oh, because acid arises up in my mouth, and three or four hours after dinner I sometimes throw up my victuals so sour as to make my throat quite sore."—"Well, now, observe what comes up, look at a piece of meat in it, and you will see it hardly altered from the condition in which it was swallowed. But look at what a healthy person throws up when made to vomit, say by sea-sickness, four hours after a meal; it is all homogeneous and the lumps of meat are quite broken up. If you really secreted an over-

abundance of gastric juice, you would have dissolved your meat more quickly, instead of less quickly than the healthy person."

We know by experiments on artificial digestion, that an increase in the quantity of the solvent secretion quickens the solution of albumen. We find, for instance, that the amount of pepsine contained in twenty grains of Boudault's powder will dissolve a piece of hard-boiled white-of-egg much sooner than five grains. The same thing would of course happen in the stomach: were there more gastric juice there would be quicker digestion. But in acidity such is notoriously not the case; the aliments lie for a long time in the upper part of the digestive canal, and often are passed still undissolved in the feces. It is a chemical act of decomposition directly opposed to the vital act of digestion.

I call a "vital" act any which forms part of the great circle of life, such as is the conversion in the stomach of albumen, previously incapable of solution and absorption, into peptone capable of entering the circulation. Now, when this vital act of conversion is carried on with rapidity by a stomach making abundance of gastric juice strong in pepsine, then chemical decomposition is prevented; nay, it is even arrested after it has commenced, as may be seen by putrid meat not becoming more but less putrid as it passes through the body of a healthy animal. But when the conversion is slowly or imperfectly performed, then the chemical change has time to take place, and does so very soon, being favored by the heat, moisture, and organic matter in a state of change. If the food remain too long without becoming chyme, the protein compounds putrefy with extreme rapidity under such circumstances.

The following simple experiments make the matter very clear to yourself or a class. As far as his own improvement is concerned, the skilled physiologist may skip the next page or two without loss.

Compare some hard-boiled white-of-egg which has been immersed in saliva at the temperature of 100° Fahr. for a day. with another portion from the same egg kept the same time in distilled water. Your nose warns you of the difference directly; the first is intolerably fetid, the second quite sweet. Exactly similar is the fate of undigested albuminoid matter, whether

animal or vegetable, in contact with the mucous membranes inside the body.

But how does that affect the case of acidity? Try another experiment. Put in one beaker some syrup of grape sugar, and it remains for hours quite neutral and natural. Set to soak in some of the same a piece of putrefying albumen for a few hours, and keep the mixture at the temperature of the body. You find that a piece of litmus paper put in it is strongly reddened, showing the copious formation of lactic acid. In another beaker, the formation of butyric acid from fresh butter by the same means may be shown.

Just so all the grape sugar and fat swallowed, meeting in the stomach or intestines with decomposing animal food, collected in a mass or glued to the side by a too sticky mucus, ferments quickly throughout, and forms lactic and butyric acids in great quantity.

Remember, the grape sugar swallowed means something much more important than merely the grape sugar put in the mouth. Take some boiled starch, and heat some of it with potassio-tartrate of copper. There is no change in the blue color of the salt. Now put some in the mouth, and hold it a few moments. When it is again heated with potassio-tartrate of copper, the metal is precipitated, and shows by its brilliant yellow color an abundant quantity of sugar.

The saliva then begins to convert starch into sugar immediately; very soon it will transform the whole mass. A mouthful of boiled starch held in the mouth for five minutes will show afterwards scarce a trace of starch remaining. As, even amongst wealthy meat-eating nations, from half to five-sixth of the solid food consists of starch,¹ it is evident that one of the most bulky contents of the stomach must be the sugar which has been made by the saliva out of amylaceous food. Here, then, is ample material for the formation of lactic acid to almost any amount. Add to this the oleaginous substances which it is impossible to avoid in any diet, and which from being insoluble in water turn into peculiarly acrid and concentrated acids, and you will have no difficulty in accounting for acidity, without recurring to a

¹ See the dietaries of soldiers, prisoners, laborers, and others, analyzed by Dr. Hildensheim in "Die Normal-Diät," p. 6. Berlin, 1856.

theoretical excess of gastric juice. Acidity, then, is an evidence of chemical, and therefore of decreased, vital action, a proof of incomplete digestion, of deficient activity in the stomach.

There is nothing in acidity to contra-indicate the employment of acids as remedies. They are often most beneficial, especially if taken shortly before a meal. The best to select are those to which the digestive canal is most used, hydrochloric or lactic in plain water. The way in which they act is probably by neutralizing the alkaline saliva and mucus which the slow digestion has allowed to accumulate in the stomach, and so setting at liberty the pepsine; for in laboratory experiments it is found that saliva arrests the solvent power of pepsine in close proportion to its amount, and that by acidifying the mixture the action may be restored.

Neither is there anything in this use of acids inconsistent with a contemporaneous course of alkalies, so that, of course, they are not mixed immediately they are swallowed. They may each act separately with benefit on the mucous membrane and nerves, and then the sooner they neutralize one another into a salt and are got rid of the better.

Some patients will perhaps think that their physician is blowing hot and cold, or rendering inert his own treatment, by ordering acids at one time and alkalies at another; and he will find it a wise plan to give an educated person a short physiological lecture on the subject, explaining the reason of his procedure. He may explain also that the acids given as medicine do something more than in the laboratory; they stimulate the mucous membrane, and so actually increase the quantity of secretion while they intensify its power. There need be no fear, which I have heard some express, that the use of these substitutes for the natural constituents of the gastric juice, or rather the supply of that which ought to exist in the gastric juice, will teach the stomach to be lazy—as doing a servant's work for him makes him less equal to doing it himself. On the contrary, the new vigor put into the system by the healthier and more copious chyme that is formed, renders the organ more active; so that it soon is enabled to go on secreting for itself what is wanted, and to do without the artificial substitute. If

patients derive benefit from it they will be able soon to leave it off.

There is a singular febrile disease mentioned by M. Chomel in "Les Dyspepsies" as an acute acid dyspepsia, in which the whole body, in point of fact, turns sour. As might be expected, it seems to be invariably and rapidly fatal. I confess I do not recognize it from his description. The case he gives seems more like one of pyæmia than anything else in my experience. But its extreme rarity takes away most of the interest which would attach to it, and its incurability the rest.

SECTION III.

Waterbrash,

(or Pyrosis) has a somewhat similar local pathology with heart-burn, in that the manifestation of the phenomenon is in the œsophagus. There is, however, this difference, that the spasm which there seems to be subjective only, is here exhibited as a muscular contraction. The tube is closed by it, and the passage into the stomach of the saliva trickling downwards is prevented, so that it collects in considerable quantities, and gushes up into the mouth without any effort of vomiting. The fluid in its pure state is therefore alkaline, and exhibits under the microscope no other formed contents except the buccal, faucial, and œsophageal epithelium.

In his valuable volume on the diseases of the stomach Dr. Handfield Jones has represented waterbrash as a watery catarrh of the mucous coat of that organ, analogous to bronchorrhœa, for example. Now, if that were so, it would contain gastric, and not salivary elements; and it would also be filled with mucous globules, as the flux of nasal or bronchial catarrh is. It would also always be ejected by a distinct effort of vomiting and nausea, which is the case only when the contents of the stomach are mixed with it.

The alkaline nature of the fluid of waterbrash, contrasted with the acidity of ordinary regurgitation, has been made by some a groundwork for a primary division of indigestions into acid and alkaline. It will be seen by the following pages that

I should consider this an arbitrary and artificial division, without practical utility or basis in nature. Acid and alkaline regurgitations are often found on the same day in the same person; so, if the stomach were a mere alembic, they would cure one another. But it does not answer to treat of a living body as if it were a chemical laboratory.

The following case exhibits the principal features of the disease:—

CASE XCVI.—Margaret S—, aged 22, an Irish maid-of-all-work in a small tradesman's family, stupid, ignorant, and bowed down in spirits, applied for advice at St. Mary's, April 13th, 1855, for what she called "sickness at heart" and "vomiting." She had been ill about two months, during which time what she called "sickness" had occurred daily. She looked in pain, and pressure on the pit of the stomach showed it to be tender when pressed with one finger's point in the cardiac region, though the flat palm laid on the spot caused no uneasiness. This pain was also increased by eating, especially potatoes, bread, and tea, of which her diet chiefly consisted. She was admitted as an in-patient, and then we had the opportunity of observing that what she called vomiting had not really that character. She used to have some eructation two or three hours after meals. But this inconvenience mostly occurred at night, ceasing towards morning with the depth of sleep. When she began to move about for the purpose of rising a sudden gush of fluid would come into the mouth once and again, but seldom or never a third time. There was no retching or effort, and no marked sensation of distress or of relief. The quantity was seldom more than five to six ounces. Preserved in a vessel, it was colorless, slightly opalescent, alkaline, and a little adhesive, like thin saliva. Under the microscope it exhibited large pavement epithelium and a few granular globules. Later in her residence in the hospital it was sometimes found less transparent and acid, as if some remaining contents of the stomach were mixed with it. The tongue was red in the centre, with white coated edges: the catamenia had been irregular for some months.

She had had a similar illness the previous year, but had recovered by rest and medicine. Both attacks she attributed to hard work and bad food.

She was treated with mustard poultices and leeches in several relays, at first four being applied, and then three every other evening, for a week or ten days, on the tender spot of the epigastrium, with 15 grains of bismuth thrice a day for ten days; then with iron pills and shower-baths. Her diet was principally broth, with milk and lime-water.

The leeches and the bismuth seemed to relieve the eructations and the pyrosis, but the cardiac pain remained till she got to shower-baths and iron.

Perhaps the most conspicuous effect was that debited to the diet, for she gradually gained twenty-one pounds in weight, advancing from 7 st. 11 lb. to 9 st. 4 lb. between the 27th of April and the 8th of June, when she left the hospital well.

Observe that the loss of blood by leeches did not prevent her gaining blood and flesh by the improvement of her digestive powers. The local benefit to such an important organ as the stomach more than counterbalanced the inevitable abstraction of what, truly enough, she could ill spare.

Some may cry out against such treatment as inconsistent. It is feeding up the patient with one hand and robbing him of his pabulum vitæ with the other. The reproach is just in a certain sense, but that a very limited one, and it may be levelled against half the operations of daily life. We are constantly suffering a small loss for the sake of greater gain—"necesse est facere sumptum qui quærit lucrum." And I reckon the absence of a little blood as of no moment at all compared with the advantage of securing freer circulation or diminution of congestion in the alimentary canal. Do not let us be led away by the superficial notion that blood is blood, and blood is life. That is not true, for blood varies immensely in its composition, some being very valuable, and some worthless. To lose a portion of his imperfect circulating fluid is but little loss to an invalid, and that little loss is amply repaid by the additional nutriment which a more rapid blood stream will enable him to absorb. The deficiency is soon made up under the restorative plan of treatment.

Where there is localized pain in one spot of the epigastrium produced by pressure at all times, I take the pathological condition to be some local change producing at least sanguineous congestion of the veins, if not tissue-thickening, at that point. Observe the importance in investigating such cases of using the ends of the fingers, and not the flat palm, otherwise the phenomenon may be passed over. It is, perhaps, needful to say that the pressure exerted should be steady and moderate. It is easy to try on yourself what amount a healthy epigastrium ought to endure.

Observe the use of shower-baths. Their effect is first to drive the blood inwards from the skin, then by nervous reaction to draw it out again. Thus mechanically the capillary circulation is quickened and continues quicker—*vires acquirit eundo*. Compare what was said (page 67) about the increase of osmosis through membranes in the direction of an increased current.

It is remarkable how in waterbrash a separation is effected by the sphincter extremity of the œsophagus between that tube and the stomach, and what a barrier it places between the two. There is no particular evidence of this in waterbrash which occurs when the stomach may be empty of food, in the night or early morning, as is most usual. But sometimes it comes on at or immediately after meals, and then much surprise is caused to the uninitiated by seeing nothing of that which is swallowed brought up again.

CASE XCVII.—Last August a retired surgeon, aged 64, consulted me for asthma produced by emphysematous lungs. Latterly, also, his digestion had troubled him a great deal; he had, after exertion, pain at the scrobiculus cordis, which he attributed to the diaphragm overstrained by his dyspnœa, but it seemed to me more in the stomach. He had also waterbrash occurring immediately after, sometimes even during, meals. He was obliged to leave the room and throw off several ounces, as much as five or six, of frothy, clear, cold-tasting fluid. Although this sometimes made him retch, yet the contents of the gastric cavity were never mixed with it.

Its being frothy arose from the nearness of the period of its secretion. When it has rested in the œsophagus a few hours it becomes quite bubble-less, as in matutinal waterbrash.

In the next case a few more details of variety in the symptoms are given, and a pretty good original name for the disease was invented (I believe) by the patient.

CASE XCVIII.—Mary F—, a widow of 60 years of age, had always enjoyed good health, and supported herself comfortably as a market-woman till she broke her arm in crowding to see her son off in a transport for the Crimean campaign. This was in January, 1855, and she was thus naturally stricken down in body and mind, and was almost starved, eating nothing but ill-cooked vegetables. In May she heard of her son's death, and this was the final blow to her health. The flatulence and pain which she had frequently felt at the pit of the stomach became more constant, and she experienced a sensation of coldness there. She often found her mouth suddenly filled with a "jet" of watery fluid, a symptom which she called "watery mouth." She could swallow the fluid by a voluntary effort, but the doing so was often followed by retching and actual vomiting of the contents of the stomach, smelling sour and tasting acid, but small in quantity. Often in the downward passage of this or of anything else she felt a resistance as of "a ball in the throat."

The greatest quantity of fluid was brought up on getting up in the morning, when it sometimes amounted to half a pint; but "watery mouth" occurred at all periods of the day, and sometimes immediately after meals.

The tongue had a white coat on the edges, and was clean in the centre. The bowels were costive. The urine was slightly acid, of low specific gravity—1.012, 1.011, are the numbers recorded in the case-book of the mixed urines. Her appetite for food and drink was quite gone, and she felt an especial aversion to animal food.

She was admitted to St. Mary's under my care July 6th, and discharged well on August 17th, 1855. She was treated with rest, bismuth, two pints and a half of milk with a pint of lime-water daily, and a graduated approach to animal food. After eating she was to take fʒss of *Mistura Ferri composita* (*Pharm. Lond.*). By the 16th of July she proposed to eat a whole instead of a half mutton-chop which had been ordered. On the 20th "no complaint whatever" is the report, but then she had a relapse, and ejected some more fluid, and also some rancid oil. She was then ordered carbonate of potash and infusion of gentian, on which she improved slower but steadier.

Pains in the epigastrium, darting through the chest, are alluded to in my notes, but are not particularly described.

It has been mentioned that waterbrash is sometimes called vomiting by the patient—"easy vomiting," or "retching of spittle." It is so even when it is evident that the œsophageal disease is an obstruction of a permanent character preventing the passage downwards of the saliva. As for instance in the following cases.

CASE XCIX.—Francis D—, a laborer, aged 57, was admitted to St. Mary's December 28th, 1852. Four months previously he first began to experience discomfort in eating and nausea. Often the first few mouthfuls swallowed would be rejected, after which he would be able to finish his dinner. He complained also of pain in the centre of the sternum, running through to the back, which kept him awake of nights. He stated also that he frequently "vomited," but the matter thrown up was found to be rejected with slight, if any, effort, and to consist of clear alkaline fluid, frothy at top. He stayed under my care three months, now better, now worse, sometimes relieved by bismuth and gaining a few pounds in weight. But the pain and dyspepsia were not cured, and were considered, probably correctly, to be due to ulceration of the œsophagus.

CASE C.—Mary S—, aged 69, was admitted May 25th, 1855, for difficulty of swallowing solids. The dysphagia seemed dependent on two obstructions, one felt at the top of the sternum, and the other at the tip of the ensiform cartilage. She complained also of "vomiting," but what she threw up was found to consist of diluted milk in an alkaline condition, that is, diluted with an alkaline fluid, and evidently recently swallowed, or else of saliva. Yet she called it vomiting, and certainly seemed to retch with it. It was never more in quantity than five ounces. Several remedies were tried without effect, and she left on June 8th, discontented at not receiving an immediate cure.

The association of an irritability of diaphragm, exhibited in vomiting, with an irritability¹ of œsophagus, exhibited in the spasm of waterbrash, is again shown in the following case.

CASE CI.—Mary Ann F—, a carpenter's wife, aged 52, was admitted to St. Mary's August 4th, 1854. She had been in the habit for some time of taking her meals very hurriedly, but previous to that she seemed to have suffered from various forms of dyspepsia, originally due probably to wearing tight stays as a girl, for her chest is very much contracted by that compression. The last five weeks she had found pain, followed by vomiting, come on about an hour to an hour and a half after taking food. The vomiting relieved her, but if it did not occur, she had for the rest of the day a painful feeling of weight at the epigastrium. At various times of the day, also, unless relieved by vomiting, she found clear water rise into her mouth, which was usually tasteless, but sometimes had a bitter flavor. From the frequency of the vomiting she had become much emaciated. The catamenia had ceased naturally two years before.

The rest of the hospital and well-prepared food stopped the sickness, so that we saw nothing of it for some time; but she had several attacks of waterbrash of clear alkaline fluid. Afterwards the vomiting returned, and sometimes was mixed with the pyrotic fluid, and sometimes contained strings of gastric mucus.

She was treated at first with this pill—

R.—Pil. Rhæi comp. gr. v.
Argenti Nitratis gr. ½.
Omni nocte et mane.

But in a fortnight she seemed very little better. She then took—

R.—Ferri Sesquioxidi gr. x.
Bismuthi Trisnitratis ℥j, ter die.

On this she got well, and left the ward on September 4th.

In the last three cases it will be observed that a great part of the motive cause of the illness may be fairly assigned to the innutritious nature of the patient's diet. Its innutritiousness arises principally from its insolubility, and that insolubility principally from bad cookery. But yet this cause was not sufficient to produce disease in a healthy body; there was always superadded some depressing influence on the vitality, of either a mental or physical nature.

This is to be noticed even in the waterbrash of the Scotch

¹ I use the word, not as explaining anything, but simply to fix the locality of the vital act.

oatmeal-eaters, where the dietetic cause is so constantly the same, and so powerful as to establish the disease as an endemic.

CASE CII.—Dr. Morgan, of Manchester, who formerly practised extensively in the Western Highlands and Islands, in a letter to me on the subject, says:—

“Cases were so similar in their leading characteristics that after seeing some three or four; all others were but a simple repetition of symptoms. The history of a typical case was something of this kind. From some cause or other *the vitality of the system in an oatmeal-eater was lowered*. Thereupon the customary diet, whether in the form of cake or porridge, proved a source of irritation; the patient then lost flesh, and complained of a sense of burning heat in the epigastrium and along the course of the œsophagus. Coincidentally with these symptoms considerable quantities of water (a pint or more) ‘came up,’ rather than were vomited. . . . Women seemed to suffer to a much greater extent than men.”

I believe the same is the case still more strongly with the potato-nourished peasantry of Ireland, whose more sensitive nervous system renders depressants of the vitality more common. But I have no written records of the fact.

Dr. Morgan goes on to attribute the innutritiousness of the diet to the form of preparation:—

“I always considered that the eating oatmeal in a semi-cooked state had much to do with it. As a rule, the people do not sufficiently boil the porridge, while in the form of oat-cake the food was still less thoroughly prepared. In using an oatmeal diet I believe that it is very important to carry the cooking sufficiently far to liberate the contents of the starch-granules. Where this is not done, not only does the food fail to nourish, but it proves a source of gastric irritation. . . . If oatmeal is boiled for about half an hour it is, even though coarsely ground, reduced to a gelatinous mass, and in this form it is comparatively innocuous so far as existing pyrosis is concerned—at least such is my experience.”

Seeing the importance of cookery, the occupation of the next patient ought to have preserved her at least from the results of bad art. But the occupation may be baneful, as well as its products.

CASE CIII.—Elizabeth P—, a cook, aged 26, came under my care at St. Mary's July 30th, 1852, for pain in the epigastrium, increased after meals and by pressure. She had also frequent attacks of morning waterbrash. Her tongue was white, but otherwise she seemed in good health; the catamenia and the evacuation of the bowels were regular. She was blistered on the

scrobiculus cordis, and took fifteen grains of nitrate of bismuth three times a day and broth diet. On the 7th of August she was well enough to eat a mutton-chop. On the 9th the bismuth was left off, as the local symptoms were relieved; and on the 18th, there being no return of waterbrash, she was discharged.

The exposure to heat involved in the occupation of cook produces general congestion of the portal system, and an after-exposure to cold draughts inclines to a catarrhal condition of the stomach. Hence arise slow digestion, oppression at the epigastrium, and a feeling of faintness, which often leads to dram-drinking. A further stage, more certain if this desire for alcohol be indulged, is pain immediately after food, and then pain on pressure.

Observe the use of external local treatment. That was resorted to in the case of Elizabeth P— because there was pain on pressure as well as after meals. The pain on pressure is an evidence, though not truly an absolute proof, of the existence of anatomical lesion, either continuous congestion or thickening or ulceration. And I find that where it exists local blistering does good, and leeching more good. Even when it is not made out in a clearly defined spot, I am still inclined to suspect in waterbrash such a condition of tissue as is capable of being renewed to a more normal one by the alterative action of counter-irritants. For so many cases occur, like those which follow, where waterbrash is associated with indubitable signs of local lesion.

In this, for instance, there was not only the peculiarity of the pain running backwards to the spine, but also a blood-stain in the mucus to show a solution of continuity in the capillary bloodvessels.

CASE CIV.—John N—, a painter, but without any signs of lead poison exhibited in the gums, aged 35, was admitted to St. Mary's April 10th, 1855, suffering from waterbrash, sometimes of a sour character, and sometimes alternating with vomiting of intensely sour greenish liquid. After he had been in the ward a few days it was observed that the vomit contained tawny mucus like that expectorated in pneumonia, and sometimes streaks of blood. He had also pain running backwards from the pit of the stomach to a spot between the shoulders, which pain was increased by pressure of the finger on the cardiac region. When he was at his worst the waterbrash was least marked, but still it was a feature of the disease. Pepsine gave no relief.

Hyposulphite of soda was tried without benefit. A blister to the epigastrium made him better for a couple of days after it, but he then relapsed. Most advantage seemed gained by the application of a few leeches to the epigastrium. He became an out-patient on May 13th.

In the next the blood evidently came from an ulcer.

CASE CV.—Sarah G—, aged 33, a housemaid, was admitted at St. Mary's, under my care, August 22d, 1857. She had been an out-patient with unaccountable languor and anæmia, which was at last detected to arise from loss of blood by the alimentary canal. After admission it was found she had also waterbrash, and pain on pressure of the pyloric region. And then the locality of the injury in the stomach was fixed by her vomiting blood, both red and brown. The hemorrhage was stayed by means of acetate of lead and opium, and then the waterbrash seems to have got worse. It was considerably relieved by iced milk and by bismuth, but more by a blister. A grain and a half of sulphate of copper daily, which was given for a fortnight, seemed to act as a tonic and enable her to digest better, quicker, and with less pain. She was still taking it when she was made an out-patient October 16th.

It does not appear that the fluid ejected by the brash was ever bloody, thus showing that it does not come from the stomach, as sometimes represented, but from the œsophagus.

I have never tried sulphate of copper in simple waterbrash without hæmatemesis, but its beneficial action in this case would seem to offer an encouragement for doing so.

In the history of John N— (CASE CIV) it is mentioned that he was a painter. Though no blue lime in the gums denoted the still presence of lead in the body, I am not sure that we can quite acquit that subtle poison of causing the disease. In the following instance the accusation was brought by the patient.

CASE CVI.—Mr. Edwin S—, aged 30, a master painter and glazier, came to me July 7th, 1862. He suffered from excessive waterbrash, bringing up sometimes upwards of two pints of clear fluid in the course of the night and early morning. Sometimes this was relieved by vomiting. The matters vomited were acid and frothy, and continued to ferment and swell after being brought up. I had no opportunity of searching them for *sarcina ventriculi*. He had also often heartburn about two hours after eating. His tongue was unnaturally red and clean.

These evils he said were always much aggravated by anxiety in business, and it was for such aggravation that he consulted me. But he had suffered in the stomach more or less from boyhood, when he used to work with lead paint.

I gave him half a drachm of hyposulphite of soda daily, and fifteen grains of bismuth every night. In a few days with the medicine and rest he was better, and I prescribed some iron next with the bismuth. I had no opportunity of seeing more of the case, as his family doctor did not send him again to me.

The hyposulphite of soda was administered as an agent to prevent fermentation. I cannot say whether it was effectual or not in this case, as the patient did not vomit afterwards; but I have thought in others that it seemed to effect its intended purpose. That purpose, however, must be well understood to be a very limited one, for it does not cure the cause of the fermentation, namely, the slowness of digestion which retains the contents of the stomach so long as to ferment and communicate their fermentation to new arrivals. This cure must be effected by invigorating the vital energy of the failing organ.

The violent shock to the vitality of the mucous membranes in cholera will sometimes leave behind it a condition of stomach productive of waterbrash.

CASE CVII.—Joseph W—, a laborer, aged 42, admitted to St. Mary's October 27th, 1854, had gone through an attack of choleraic diarrhoea in August, and since that time had not digested his food properly. The epigastrium was tumid and tympanitic on percussion. The tongue was large, flabby, and red, as if flayed. For the last three weeks previous to admission he had suffered from attacks of waterbrash. He was treated with gr. xv of trisnitrate of bismuth three times a day, but was not considered ill enough to remain as an in-patient beyond November 1st, so that I probably saw him only once.

An operating cause of similar nature is dysentery.

CASE CVIII.—Mr. Henry M—, a man of middle age, had several attacks of dysentery in Australia, and has never been quite strong since. He suffers from diarrhoea from the slightest error in diet. It was one of those attacks, brought on by taking a cup of bad coffee at a coffee shop, that induced him to consult me. I gave him sulphate of copper and also bismuth, which both, he said, had done him good before. On inquiry I found that he very frequently suffered from waterbrash in the morning and during the night, though very careful of his diet. He traced this to the dysentery, and both to spirit-drinking, which he felt sure predisposed people to dysentery in Australia.

It is also, sometimes associated with phthisis pulmonalis, and then the defective nutrition which it implies brings on a con-

dition of general degeneration. This is important from the possibility which exists of staying the degenerative tendency and so arresting the downward course of the phthisis by attention to the stomach and œsophagus.

CASE CLX.—William J—, aged 21, a carpenter, on admission to St. Mary's, August 21st, 1857, was much emaciated, and presented indubitable signs of solid tubercle in the upper lobes of both lungs, of such duration as to have made the upper ribs flat and immovable. The date of his consumption, from the period of his having "caught cold" and spat blood, was two years. Latterly he had suffered from waterbrash of a morning. It was difficult to make out whether he had pain in the epigastrium, as there was stitch in both sides of the waist, which had its origin in the pulmonary disorganization.

After a few days' cod-liver oil and iron the albumen disappeared from the urine, and then the patient began to gain weight. Between the 28th of August and September the 5th he increased by 2 lb., and the 12th 1 lb. more. The extent of further increase is not noted, but he was bettered enough to leave hospital on October 3d.

The disappearance of the albumen from the urine shows that the derangement of the kidneys was only temporary. But in pulmonary consumption we find such temporary derangements soon end in permanent disorganization, if allowed to become ingrained.

It may be observed that in several previously quoted examples the supervention of waterbrash has been at the period of the normal cessation of the catamenia. It is also apt to follow upon such states of body as cause the arrest of the periodical evacuation in younger women.

In the following case there were also joined an occupation which, as we have seen, tends to produce derangements of the upper organs of digestion.

CASE CX.—Ellen R—, a cook, aged 22, admitted to St. Mary's, November 4th, 1856, had been getting ill gradually for some months, at first suffering from feverishness, headache, and constipation, then finding her monthly periods arrested, though she still had leucorrhœa and pain in the back at the time when they ought to appear. The last-arrived symptoms were a dribbling of saliva from the mouth, and on rising in the morning a gush of clear watery fluid from the œsophagus. This fluid was sometimes made acid by the admixture with it of some of the contents of the stomach ejected by vomiting. She once also, while in hospital, threw up some greenish fluid (? altered blood).

She was treated with bismuth and ultimately discharged well.

Green vomit may arise from the admixture of bile which has regurgitated through the pylorus. This only happens after violent retching and straining, and the bile may be recognized by its bitter taste. It may also arise from the admixture of blood altered by the gastric juice, like the porraceous stools of dysenteric babies; and in such case there is likely to be very little straining and no bitter taste. The notes are not full enough to decide of which nature Ellen R—'s vomiting was, probably the latter, as bilious vomit is rarely joined to water-brash. Indeed, bile is seldom thrown up in chronic diseases, and appears rather a guarantee of a considerable amount of health.

In nearly all the cases I have quoted waterbrash has occurred in young or middle-aged persons. And perhaps this fairly represents the habits of the disease. Yet it is not unknown in the old, as the following instances will show.

CASE CXI.—In May, 1848, R—, a farmer, came under my care for waterbrash, from which he had lately began to suffer. He had also occasional attacks of vomiting. His age was about 70. He got well on bismuth. I saw him again in 1851, for some pain in the pyloric region of the stomach without waterbrash. However, there was no cancer, for I recollect seeing him several years afterwards in the streets at the time of the cattle show.

CASE CXII.—Mrs. B—, aged 66, was under my care in July, 1861, for waterbrash, accompanying indigestion brought on by anxiety of mind in nursing a consumptive son-in-law.

CASE CXIII.—Mrs. A—, aged 60 (but older than her age reckoned by annual revolutions of the sun, for the catamenia had ceased eighteen years), consulted me in August, 1863, for indigestion, marked by waterbrash occurring at various times of the day, not confined to the morning.

The following case, on the other hand, is exceptional, from the youth of the patient.

CASE CXIV.—Miss S—, aged 15, an undergrown girl, was under my care in July, 1858, for waterbrash accompanied by a feeling of oppression at the epigastrium occurring when the stomach was empty, and relieved by meals. She was weakly, and retained the insignia of former ill-health in the shape of scrofulous scars in the neck.

In this last example mention is made of the relief which some persons affected by waterbrash experience on taking food. This

so frequently occurs in heartburn, and so rarely in ulceration, that I am disposed to view it as an evidence that the waterbrash does not, where it is found, depend on any serious anatomical alteration of tissue.

I have never seen it amount to "bulimia." The patients want to eat often, but they are not often hungry, and they do not want to eat much. I cannot recognize the truth of the statement, made by some writers, that indigestion leads to bulimia, as I understand the term.

It is a relief which may be prudently allowed to them, so that care be taken that what is eaten be easily digestible. Indeed, a judicious management may turn it to a means of cure by preventing the overloading of the stomach—by "spoiling the meals," as it is technically called.

The treatment of waterbrash has been almost sufficiently detailed in the histories given. It consists of sedative alkalies, and the best are those which lie longest undissolved, such as nitrate of bismuth. I give this in doses of from ten grains to half a drachm, either alone in a powder, or in a draught with carbonate of soda and hydrocyanic acid. The soda I give where there is much acid rising, the hydrocyanic acid where there is local pain on swelling or on pressure.

The final cure must be effected by iron in anæmic cases. The red rust goes very well in a powder with the bismuth. If the patient is not anæmic it will still be as well to go through a short probation of the general treatment of indigestion, quinine and strychnine, before medicine is left off altogether.

Kino and opium powder is also a good astringent to the upper part of the primæ viæ, and hardens the over-sensitive nerves of the œsophagus, but I cannot lay hand on any cases in which I have used it alone.

The local application of leeches and blisters must depend on our diagnosis. They are of use in those numerous instances where there is pain on pressure elicited by the finger rather than the palm of the hand, I think not otherwise. The water cure by compresses usually does harm; it renders the part more sensitive.

In food all insoluble matters (such as those consisting chiefly of cellulose, chlorophyll, and raw starch), waxy potatoes, peas and beans, cucumbers, sodden pastry, new bread, half-cooked porridge (Dr. Morgan), and the like, must be avoided. Fresh meat-broth, beef-tea, milk guarded with lime-water, must be the food trusted to. I have found oysters, both raw and cooked, well borne; but they must be quite fresh and alive.

SECTION IV.

Spasm,

Or "*The Spasms*," or "Stomach-ache," as sometimes called, is a peculiar pain, resembling that felt in cramp of the voluntary muscles, extending across the epigastrium. It remits from time to time, but does not intermit like heartburn. Though the pain resembles that of cramp, there is no evidence of any muscular contraction; indeed, examination of the epigastrium shows the stomach distended with a more than ordinary amount of solid matter and air. This pain arises in a stomach rendered atonic, either temporarily by some depressing agent, such as heat or fatigue, or more permanently by general debility, when the organ is filled with some insoluble matters. It is a condition analogous to the over-distension of the bladder with retained urine, in which the pain has a similar remittent character. It usually commences from five to six hours after the food which has produced it, becomes gradually more intense, and passes off either by the insoluble mass getting through the pylorus or by vomiting.

The seat of the pain is not easy to fix when it is severe. In the lighter cases, and as it passes away, it seems to tend towards the pyloric sphincter, and to become located there. The very muscular nature of that part may serve to explain the tendency of this, more than any other gastric pain, to be associated with spasm of voluntary muscles.

Other characteristics will be sketched in the cases which follow.

CASE CXV.—In the summer of 1842 the writer started, without his breakfast, early in a row-boat for the top of the Lago di Como. He was out in the

sun without food till noon, when he bought his hatful of hard peaches and little green figs, and finished them at a sitting. In the afternoon pain across the epigastrium gradually came on, but still he ate his dinner. That seemed to ease the pain for a time, but it came on again worse and worse in paroxysms, just like cramp. He travelled on in an open carriage from Como to Milan, but the pain was very bad. On the road he vomited, not his dinner, but the skins of the figs and the peaches in the state in which they were swallowed. After arriving at Milan at midnight he vomited again, this time the dinner eaten in the afternoon. The masses of food had therefore got reversed in their position in the stomach. Soon after the second vomiting the spasmodic pains abated and ceased with sleep.

CASE CXVI.—The same party in the following year lunched on a dozen or so of pears at Leipsic after a hot dusty journey from Dresden. Again the pain was relieved by dinner, but returned afterwards. An emetic of mustard and water gave relief rather sooner than waiting for the spontaneous evacuation of the stomach.

CASE CXVII.—The same party, when not in very strong health this spring, committed the imprudence of seeing a troublesome patient before breakfast. At noon pain in the epigastrium came on, was relieved by a mutton-chop at lunch, returned worse an hour afterwards. In the evening vomiting was induced, and the first things that came up were the toast and water-cress eaten at breakfast. With sleep the attack passed off, but the epigastrium still remained abnormally tumid and resonant on percussion.

I promised in a former chapter (page 90) to introduce another case in which gluttony was an act of virtue, if not of heroism—here it is.

CASE CXVIII.—Mrs. D—, aged 50, sent for me one afternoon this spring of 1866, to see her a few miles down the country. I found her slowly recovering from an attack of "spasms of the chest" (epigastrium), which had lasted twenty-four hours, leaving the epigastrium tumid and drummy on percussion. She had passed one small light-colored pultaceous stool, so I gave her a rhubarb and peppermint draught to elicit another or two.

I directed my principal attention to discover the exciting cause of the stomach-ache, and believed that I rightly fixed on a large cold early dinner, accompanied by a quantity of salad and cucumber. I gave a warning against this, and then went to the village hard by to see an old patient, a poor cousin of the one who had summoned me, making my visit to the wealthy relative an excuse for not taking a fee.

A short time afterwards I received a second summons; found Mrs. D— had another attack of spasms, had vomited, and was better. But what was my surprise to see in the basin a large quantity of cucumber, against which I had given such a strong warning. I found reason for believing that this apparent act of gluttony was committed as an excuse for getting me to see the less fortunate neighbor again. The vomiting made the attack pass over quicker

than the former one, and no purgative was required. The contents of the basin were very slightly acid.

Mark the last sentence—it is clearly not acid, but distension, that causes these pains.

The preceding cases have exhibited spasms arising after a heavy meal of insoluble matters taken at an unnatural hour. When the atony or paralysis is induced by dinner, then the attack assumes a different and to the patient a more alarming character. He is woke up by it in the early morning, and I think it is usually more sharp and severe.

CASE CXIX.—E. N. S—, an energetic but not strong business-man, of middle age, has had several of these morning attacks, which he can always trace to a dinner of insoluble matters after an anxious day's work. He is always a good deal alarmed at the time, but they pass off in the course of the forenoon, either by vomiting or pultaceous stools. The matters vomited I have never seen, but he says they retain the taste of food, and are not acid or fermenting.

In whatever parts it may occur, atony, or defect of voluntary and normal action, has a tendency to alternate within voluntary and abnormal action. It is when the legs are tired with over-walking that they are apt to be racked with cramp; it is when the whole body is debilitated and incapable of designed control that it is agitated by chorea.

The atony of purely involuntary parts most generally produces these contractions, not in themselves, but in the neighboring systems of muscles, subservient in most cases to the concatenated acts of the said involuntary parts. Thus, over-distension of the bladder causes stricture in the urethra; over-hard and bulky feces bind up the sphincter ani.

I have already pointed out how chronic slowness of gastric digestion first is evidenced by heartburn, which appears to be relaxation, and then by waterbrash, dependent on contraction of the œsophagus.

Just so acute atony of the stomach, or stomach-ache, will sometimes produce cramps of the abdominal parietes, even while it is itself distended and palsied.

CASE CXX.—At the end of last June I was requested by Mr. Paget to see a young man of nineteen, reported to have cholera. The history I found to

be this. He had been working hard at inorganic chemistry, to prepare for an examination, torturing the metals and himself with repeated tests, not shrinking from exposure to sulphuretted hydrogen, and, what was still worse, not caring if the laboratory stank of arsenic. Then came the examination. The evening before he came home tired and anxious, but ate a good dinner, probably with the false appetite of intellectual toil. He went to bed and to sleep, but was awake before sunrise by a spasmodic pain in the epigastrium, not increased but rather lightened by pressure. As this got worse he tried to ease it by forcing an action of the bowels, but his success brought no relief to the pain. Breakfast made him somewhat better, and he went to the laboratory. But by eleven o'clock he got so bad that he was driven home and went to bed. In the afternoon cramps came on in the abdominal parietes, and could be alleviated only by the constant rubbing of two sturdy housemaids. These cramps extended from time to time into the legs and arms. The epigastrium was tumid and drummy on percussion. His face was shrunk, pale, and livid, the eyes leaded and anxious, the pulse small and extraordinarily quick (nearly 140 in a minute), the skin cold and clammy. Indeed, I did not wonder at the household calling it cholera. But I was comforted by finding no vomiting or diarrhœa, and by seeing a fair quantity of full-colored urine in the chamber utensil. Towards sundown the pain gradually abated; he had a pultaceous stool, went to sleep, and when I saw him again the next morning was well, though he said his belly was very sore after the cramps. The pulse had sank to 80.

These cramps have, I suppose, the same pathology as those which so generally accompany the collapse of cholera. In that disease they are developed in consequence of the whole alimentary canal, but more especially the ilia, being devitalized and paralyzed by an extraneous poison; whereas here the stretching of the stomach by the overpowering weight of a mass, which it cannot move on, is the paralyzing agency.

In the case above cited possibly the sulphur and arsenic may have had somewhat to do with the illness, but their special poisonous actions were not in any way manifested in the symptoms.

Spasmodic pain will sometimes in weakly and elderly persons be a consequence or an accompaniment of flatulence. At least the pain resembles spasmodic pain, and moves about from one part of the abdomen to another, not being usually fixed in the stomach like that described above. It is best relieved by a diffusible stimulant.

A close resemblance to the pain above described is sometimes found as a manifestation of malarious poison. These cases may usually be distinguished by the entire absence of all other gastric derangement, or the indication of any such derangement in the general health, by the intermission of the pain, and its entire absence during the intervals, by the previous presence of other proofs of ague poison. The following is an example.

CASE CXXI.—In November, 1857, I was consulted by Mr. J. W. W—, a young-looking man of 40, concerning the occurrence at intervals, sometimes regular and sometimes irregular, of a violent “spasmodic pain,” as he called it, in the epigastrium. Its usual time of invasion was between three and four o'clock in the morning, after going to bed in perfect health. It would last an hour or two, and then cease with the eruption of considerable sweating. It was worst towards the right side of the epigastrium. His tongue was clean, and he had habitually two natural solid stools a day. He had never had ague, but his house was buried in tall trees in a damp valley in the west of Shropshire, and even he allowed it to be ill-drained. One of his children had died of low fever. He had just had a more than ordinary severe attack during a night journey by rail. His aspect, however, was that of perfect health, and there was not a trace of tenderness in the abdomen.

I desired him to take two grains of quinine in a little whiskey twice a day for three weeks at once, and in future to take the same course for a week whenever he returned home from a temporary absence.

Early in 1858 he came to report that the treatment was completely successful, though he had in the meanwhile broken an arm; and later in the year I had a message to the same effect.

It is characteristic of this neuralgic pain that it is not developed by external pressure or by food, and that there is no tenderness of the epigastrium. By this it is distinguished from a kind of spasmodic pain by which the wearing pain of ulcer is sometimes diversified.

I should always give the quinine without acid in these cases, for it is wanted to act directly on the nerves of the alimentary canal.

SECTION V.

Gripes.

Sometimes, instead of the pain caused by food remaining in the epigastrium, or extending upwards towards the fauces, it descends to the lower bowels and is felt as a twisting sensation about the umbilical and hypogastric regions. This is usually

followed and ended by the passage of one or two light, loose, often frothy stools, in which may be not seldom detected articles of diet swallowed scarce half an hour before.

Patients do not call this "diarrhoea," for it is excited only by food, and ceases immediately with the evacuation. They usually describe it as "loosness." One gentleman, who had been reading the ancients, denominated it "lientery," and I dare say it is what our forefathers in art meant by that word.

It will be seen by the cases used for illustration that it is usually dependent upon some morbid condition of the lower bowels, either the last part of the ilium or the colon. Why a lesion in that situation should cause the contents of the stomach to pass through the pylorus too rapidly, when lesions of the stomach itself, duodenum, liver or jejunum, do not do so, though much nearer, is not explained.

The following example presents that which is the most unfortunately common shape in which this ailment is found.

CASE CXXII.—Mrs. B—, aged 45, came under my care September 29th, 1857. She complained that immediately after taking food a pain came on in the centre of the epigastrium, which gradually proceeded downwards with a twisting wavy movement, till within half an hour it ended in a motion of the consistence of pea-soup, which varied in appearance according to the nature of the food it followed, and often smelt of that food in case of its having any characteristic odor. There was no pain on pressure of the epigastrium but of the right iliac fossa there was. Ulceration probably existed in that locality; and the scars of juvenile abscesses in the throat, together with consolidation of the two apices of the lungs, made almost certain the conclusion that they were of a tuberculous character. Sulphate of copper, morphia, logwood, and bismuth, were tried in succession, with only the merest temporary advantage. She soon died.

In mentioning this fatal termination of tubercular ulceration of the digestive canal, I do not mean to imply that such is the necessary history of every case. CASE XXXVII (page 57) is an instance to the contrary; but I do not find any mention there of the griping and emptying of the stomach immediately after the meals, as in Mrs. B—. And this I have generally found an omen of very bad import. In point of fact, it is not so much the diarrhoea as the effect of that diarrhoea upon the upper part of the digestive canal, especially upon the stomach, which proves so deadly.

CASE XXXVII shows that it is very wrong, even when tubercular disease of the lung exists, to despair of effecting a cure of the diarrhoea; but I must say I have never come across a case of a favorable termination in consumptive cases where the stomach was affected by it.

However, in non-consumptive cases much more may be done.

CASE CXXIII.—In September, 1858, W. J.— put himself under my care. His age was 50. He had lived an active business life without any severe illness. But for the last three years or more he had become affected on the slightest provocation with looseness of bowels. This had gradually become constant, a pain coming in the epigastrium immediately after food and ending in a motion. Examination of the chest detected no lesion of the lungs.

I managed to check this with small doses of castor oil and opium, and extract of hæmatoxylum. But it recurred again in December, and then I found there was pus and streaks of red blood in the stools, and gave him sulphate of copper. This was soon effectual. In February, 1861, it again returned gradually, and I gave him bismuth for a month, but it did not stay the symptoms, and we were obliged to have recourse to his old friend sulphate of copper, which set him up again. In 1863 he came to consult me about a cough, but made no further complaint of loose bowels or epigastric griping.

The streaks of red blood in the stools render it most probable that the lesion was in the colon, and the absence of any complaint of pain in the ilio-cæcal region confirms the diagnosis.

I am convinced sulphate of copper is the most effectual remedy in these cases. Next to it comes hæmatoxylum, and next opium. As far as immediate effects are concerned perhaps opium should rank higher, but the good it does is by no means permanent.

By beginning with $\frac{1}{4}$ -grain doses, sulphate of copper may be carried to 2 grains with ease.

The relaxation of the bowels is not always so immediate. Take the following instance.

CASE CXXIV.—Miss Louisa P— (age uncertain) came under me in September, 1857. She seems at first to have complained solely of general languor and pain at the epigastrium of an obscure character, and I put her on citrate of iron and prussic acid, with milk and meat diet, and directed her to be careful not to press upon the pit of the stomach when sitting at her work of keeping a large girls' school. When I saw her again in October I found that the pain at the epigastrium came on about twenty minutes or more after food, that it went downwards to the bowels, and was followed by a soft, some-

times liquid, stool. I put her then on bismuth and iron, which she went on with to the end of the month till she got better.

Sulphate of copper would probably have acted quicker.

The annexed case gives a detailed history of the origin of the disease in non-tubercular persons.

CASE CXXV.—J. B. C—, at 17 years of age, had a severe acute diarrhœa, brought on by the effluvium from an offensive drain in the house where he was at school. This was in 1858. From that time he became subject to frequent attacks of diarrhœa, brought on by very slight causes, and especially in June, 1861, had one when at college, which was dysenteric, that is, accompanied by sanguineous stools. After this his meals brought on a pain in the epigastrium, which was followed almost always by a thick pulpy motion in which he had looked for blood, but never saw any. In the long vacation he went to an hydropathic establishment, where he said he got worse and was half starved. Whether in consequence of that or the disease, he was very much reduced, perspiring at night and emaciating rapidly, and so weak that I went to visit him at his lodgings several times.

He had never suffered from cough, and was quite sure that there was no hereditary tendency to consumption in his family.

When I first saw him in November of the same year I put him on hæmatoxylum for five days. It was of no use. I then prescribed—

R.—Cupri Sulphatis, gr. $\frac{1}{4}$;
Pulv. Ipecacuanhæ co., gr. ij.
In pilulâ ter die.

The employment of this for six days removed the pain in the stomach, and reduced the motions to one after breakfast and one at night, of a solid consistence and greenish-brown color. He then resumed the hæmatoxylum, which proved sufficient to restore his appetite and strength.

C— continued quite well and went into the army. In 1863, after a long review day at Aldershot, topped up by drinking a quantity of Moselle cup, he got an attack of diarrhœa, and, fearful of a relapse of his old complaint, he came up to see me in London. But it was easily stayed with a little chalk mixture and rest.

He called at my house in 1864, when I was ill in bed, to have a card and say he had got promotion, so that there is no reason to believe he has continued anything but well.

It is surprising that a state of bowel which has been so long coming on should be so readily and quickly cured. Such cases as these are very wholesome to the mind, strengthening it in faith that efficient treatment is discoverable, if we will only take the trouble to look for it.

Remark the extreme state of weakness indicated by night

sweats and emaciation. A mere looseness of bowel would not induce that, but only a looseness which secondarily affects the stomach.

SECTION VI.

Weight.

This is a feeling like that often locally experienced at the beginning of sore-throat, coryza, influenza on the chest, leucorrhœa, gonorrhœa, or irritable bladder. In those diseases it gives notice that the internal lining membrane of the spot is red, swollen, soft, and beginning to be coated with adhesive mucus. In the more advanced stages, as soon as pus is formed, the sensation ceases.

In all these situations it is sometimes called "oppression," sometimes "tightness," sometimes "distension;" but I think the word I have chosen is that most commonly applied to the epigastrium. It is so in my notes taken from word of mouth.

Patients will sometimes say it feels as if they had eaten too much, but their account of their meals does not show such to be the fact. And in those whom we know to eat too much we do not find this feeling at all universal, as may be seen by reference to a former chapter (page 90). Besides, if the feeling arose from over-fulness of the stomach, it would be felt most when the stomach is fullest, namely, during a meal; but such is not their experience.

The first inclination therefore of the medical pathologist is to refer it, when complained of in the epigastrium, to the development inside the stomach of the catarrhal condition alluded to above. And his inclination will be strengthened by the perusal in his note-books of such cases as the following:—

CASE CXXVI.—In the Post-mortem Register of St. Mary's Hospital there is an account of the autopsy of Eliza Ann S—, who died November 25th, 1853, aged 14, of dyspnœa from diseased heart, the consequence of rheumatic fever, and towards the end of her life albuminuria with dropsy. It is needless to detail the appearances of the heart and lungs, on which I am not going to comment, except to say that they fully accounted for the illness and death. On opening the stomach its inner surface was found covered throughout with a coat of mucus of extraordinary thickness and toughness. Its transparency was stained by the admixture with it of a good deal of yellow-brown matter.

The microscope showed this not to be bread-crust by proving the absence of starch-granules, and rendered it probable that it was digested blood. The microscope exhibited also the presence of scattered specimens of sarcina ventriculi. The membrane itself was stained with many spots of punctate congestion, and the principal contents of the stomach besides mucus was coffee-ground colored fluid of neutral reaction.

She had been under me in the wards for several months, and on referring back to the record of the case during life for symptoms in the epigastrium, I found frequent mention made of "weight," as complained of in that situation, and no other term ever used to describe the sensation. I find also that she very frequently vomited sour matters, and had a sour taste in her mouth; and that the vomiting and the weight embittered the poor little sufferer's last days. Her appetite was good, so that she took a variety of food, sometimes in restricted quantities, sometimes not; but neither dietary nor medicine seemed to alleviate the gastric symptoms.

The vomit during life had several times been examined by the house-surgeon for sarcinæ, and they were not found; nor was it frothy; nor had it ever contained the coffee-ground fluid found after death, but was intensely acid.

The natural conclusion is that the weight and other gastric symptoms were caused by the continually recurring congestion and pouring out of mucus in the parietes of the stomach. And the symptoms and post-mortal appearances were marked enough to make one view this as a typical case.

I must, however, in justice, tell that in twenty-three cases collected by Dr. Handfield Jones, in which an excess of mucus was found after death, no mention is made of weight at the epigastrium among the symptoms during life.¹ Possibly it was not considered of sufficient importance to make a note of. Possibly the diseases of which the patients died, most of them acute and painful diseases, masked even to the sufferers themselves the minor evil.

I may remark in passing on the difficulty almost universally presented by this last-named factor in the calculation, when an attempt is made to connect the post-mortal appearances with the phenomena recorded during life in all diseases which are not the immediate causes of death. Like other things, pain cannot be in two places at once (I speak of course metaphorically), and when you are having a tooth out you fail to notice the operator treading on your toe. The greater ill hides the lesser.

¹ Handfield Jones "On the Stomach," p. 74, and "Medico-Chirurgical Transactions," p. 109.

Weight is most commonly felt towards the right side of the epigastrium, and no sensation is conveyed up the œsophagus towards the fauces. Now it is in the pyloric region, according to Dr. Handfield Jones, that the catarrhal state of mucous membrane commonly occurs, and I am disposed to attribute to the nerves of the pylorus, and to a morbid state of that part of the viscus, this peculiar gastric sensation.

In CASE CXXXVI the state of heart was adhesion of the pericardium and enlargement. In the next instance pure valvular lesion without enlargement would seem to have been capable of producing a similar state, if one may judge from the symptoms.

CASE CXXXVII.—Ellen W—, aged 18, a domestic servant, was in St. Mary's under my care for six weeks, from February 13th, 1852, and again was admitted in January, 1853, for a fortnight. There was a harsh systolic murmur, heard loudest at the level of the aortic valves, the sound fading away gradually towards the apex of the heart. The pulse was always from 105 to 120, and she complained of palpitation when asked about it. She was very pale and weak, unable to do her work, bursting into a perspiration when talked to, and having a violent hysterical fit when a patient in the ward had an abscess opened. But her chief complaint was of weight, sometimes amounting to actual pain, in the epigastrium, and of vomiting.

She was treated at first with small doses of *Hydrargyrum cum Cretâ*, and saline draughts. She got worse under this treatment, and the pulse remained quite as quick. She was then put on decoction of bark with quinine, and the pulse fell. Mustard plasters to the epigastrium seem also to have been of use. Then the weight of the epigastrium diminished, and the vomiting ceased; but coincident with that the patient began to have a cough; and as the expectoration of mucus from the bronchi increased, so the gastric symptoms were alleviated. Then she regained her color, got stronger, and heavier by a few pounds. The pulse went down to 84, and she was made an out-patient.

However, she was admitted again at the beginning of next year, and gave us a history of chronic invalidism. She had been allowed to lie in bed and indulge her feelings of languor. There was no cough, but she said that another mucous membrane, the vaginal, was affected, and she frequently had leucorrhœa. She complained of palpitation of the heart, but not of the gastric symptoms so much.

Remark here how the effects were produced now on one mucous tract, now on another, not on both at once, but in succession. The supervention of the bronchial relieved the gastric

catarrh, and the leucorrhoeal, brought on by lying in bed and coddling, succeeded. Such cases can seldom be cured in the short time which hospital necessities allow.

Mercurials seem very bad treatment, but just at that epoch somebody had been recommending them in gastric complaints, and I thought that such a one as this, if any, ought to be benefited.

A minor degree of weight at the epigastrium is sometimes produced where the heart is merely excitable, without organic lesion.

CASE CXXVIII.—G. K. R.—, a civil engineer, aged 33, September 26th, 1861. He suffers a good deal from palpitation of the heart, which is brought on by even the slightest mental cause, but not by any ordinary bodily exertion, and there is a feeling as if the heart beat irregularly at times. The stethoscope and percussion detect no abnormality of shape and sound in the organ, except the quickness of beat after a short examination. He is used to the palpitation, and what he would complain of is that when he comes out in the cold after breakfast, to go to his work in London from Greenwich by the steamer, he experiences an oppressive sensation at the pit of the stomach, which continues at least the greater part of the forenoon. The stomach feels as if a weight lay there, or as if it were tumid with wind, which on examination is found not to be so.

R— was directed to eat milk-porridge for breakfast, to wear thick flannel over the epigastrium, and to take four minims of hydrocyanic acid a quarter of an hour before food.

On the 11th of October he comes to me again, saying that all the local distress has passed away, and that he feels only weakness, for which he is ordered quinine and strychnine. He finds milk-porridge a very convenient breakfast.

This action of the cold air is just what one feels in nasal or bronchial catarrh. Flannel is a very good perservative, and acts as a counter-irritant as well, in those who are unaccustomed to it.

The milk-porridge was intended to be a mass of even moderate temperature, in fact an internal poultice, which would at the same time be sufficiently nutritious for a man in hard work.

Hydrocyanic acid was designed to act on the whole of the pneumogastric nerve, inasmuch as it was through its chronic sensitiveness in the heart that this temporary condition of the stomach was induced.

Doubtless in CASE CXXVIII the weather had considerable influence in determining the condition. In the next it seemed the sole factor.

CASE CXXIX.—Miss D—, aged 50, but old of her age, for the catamenia had ceased four years, came to me in November, 1856. She complained at first of constipation, which was always worst in wet weather. But on inquiry I found that this was not all; she had flatulence and an oppressive sense of weight at the epigastrium, extending to the right hypochondrium, after meals, and it was this which was aggravated by the hygrometric state of the air. She lived in one of the little old-fashioned damp Cinque Ports, and a removal to Ventnor for the winter made all the difference to her.

I am surprised in looking over my notes not to find flatulence more often associated with weight at the epigastrium. The patients so frequently speak about their feeling “blown out” that one expects it in every case, but manual examination of the abdomen does not detect it. I am led therefore to conclude that this feeling “blown out” must be mainly a subjective sensation. True flatulence is usually associated with more purely neuralgic conditions, and does not, like the subject of the present section, lead to the diagnosis of catarrh. Moreover, the *sensation* of tumidity is by no means a marked feature in real tumidity. Patients often omit to notice it.

There was, however, flatulence in CASE I¹ along with weight, and again probably in the following:—

CASE CXXX.—During the spring and summer of 1857 I had several visits from a thin withered old gentleman, T. S. S—. His principal complaint was of “weight” at the pit of the stomach, but he must also have suffered from flatulence, as I see that I have prescribed for some time charcoal and strychnine in powders, which I should not have done except for that symptom.

Costiveness is a very usual accompaniment, and in the following case benefit seemed to accrue from a purgative drug.

CASE CXXXI.—Thomas K—, aged 45, an Irish manufacturer, came to me July 14th, 1857, complaining of costive bowels. Confusing cause and effect, he attributed to that costiveness a constant “pressure” on the epigastrium, low spirits, want of sleep, and anaphrodisia. I gave him a prescription for five grains of aloes and myrrh pill, with 1-12th of a grain of strychnine every night, and desired him to take them for a week, and return to London to see

¹ Page 31.

me again at that time. To his surprise they had not acted as purgatives, but elicited matured stools. He was very much better in every respect, and continued to take small quantities of the two drugs till he was well.

The low spirits which usually accompanies weight at the stomach sometimes amount to thorough hypochondriasis.

CASE CXXXII.—Mr. W—, aged 30, was brought to me by Dr. Dunfield, January 19th, 1866, on account of the persistency of a sensation of weight towards the right side of the epigastrium, coming on three-quarters of an hour after meals, by which he had been led to give up business since 1864. He was, however, none the better for giving up business. His nights were restless, and he was often woke up by headache. His spirits were at all times low; he had no actual delusions, but he took the gloomiest view possible of everything, and was inclined to be miserly in the management of his income, which was ample enough for his wants. The tongue was covered with a white fur with transverse cracks. The gums were edged with a pink line, but were not sore. The urine contained floating crystals of oxalate of lime. I advised him to travel abroad.

I suppose it must be from depression of spirits being so often associated with discomfort in the pyloric region of the stomach or the right hypochondrium that we derive the term hypochondriasis as descriptive of that mental state. Just as irritability of temper is called "the spleen" because it is so often seen with a stitch in the left side, or splenic region, in females.

The white furred tongue with transverse cracks is very distinctive of an irritable condition of stomach, but it does not always accompany weight.

The pink edges to the gums are also a gastric symptom. They are often found in the dyspepsia of early phthisis; but they are pathognomonic of the dyspepsia, not of the phthisis. As in this instance of Mr. W—, they are often found without any tendency to pulmonary disease.

The deposit of oxalate of lime, instead of urates or uric acid, in the renal excretion, is common in such dyspeptic cases as manifest nervous symptoms. I have sometimes found with it spermatozoa, involuntary seminal emissions being also frequent in the same class of cases, if the patients lie on a soft bed or with the head low or on their backs.

The hypochondriasis is apt to take a form engendered by the situation of the discomfort. The patient will fancy he has something strange and abnormal in the stomach.

CASE CXXXIII.—At the end of June, 1857, I saw a few times a Mr. B— a middle-aged man, who complained of weight at the epigastrium and right hypochondrium. He and I quarrelled because I refused to treat him for tapeworm in the stomach, or to believe that he had one inside him anywhere. The tongue was coated with white, with cracks across it; the complexion was thick and muddy. The patient was excessively nervous and fearful, and complained especially of a “scratching at the back.”

What is this sensation which people call “scratching at the back”? I find it used in a letter to me from a girl with hysterical paralysis of the legs, and I have certainly heard it from other nervous patients, but cannot recall the circumstances, nor does it convey any definite meaning to my mind.

As a rule, weight and heartburn do not go together. Patients quite understand the difference, and when skilled by unhappy experience in gastric symptoms treat them as excluding one another. Thus—

CASE CXXXIV.—Colonel B—, aged 43, came to me July 30th, 1866, about a certain loss of power and pain in the legs. Tracing these symptoms to the stomach, I inquired about the habits of that organ. He said it was a weak vessel. Did he suffer from heartburn then? No, he was “remarkably free from heartburn,” he said, though he knew what it was very well. What he felt was “a weight at the pit of the stomach and in the liver,” better in a bracing climate, worse in a damp relaxing one.

Yet such a thing does happen as the conjunction of weight and heartburn, and when it does the general symptoms are more than commonly severe, even when the catarrh is not bad enough to cause vomiting.

CASE CXXXV.—J. H. R—, a commercial traveller, aged 42, was sent to me by his family doctor, who had watched the case, September 20th, 1858. He had always been a fairly temperate man, and presented a healthy weather-freshened aspect, but with a look of distress or pain in his face. Naturally in the exercise of his calling he had been a good deal exposed to changes of temperature and to wet, and to irregularity of meals. Gradually he began to suffer from indigestion, which grew worse and worse. He had an almost constant weight at the pit of the stomach, especially towards the right side. But he had also decided heartburn and rising of fluid in the mouth of uncertain character, and probably consisting of regurgitated food. This led the way to nervous symptoms, to vertigo and occasional stumblings, and to such confusion of thoughts and difficulty in fixing often attention that he was quite unfitted for business.

He was cupped to a small amount on the back, was blistered, and had gr. xv of bismuth three times a day, and a small aloes and myrrh pill with 1-12th of a grain of strychnine every night.

His dietary was to be as follows :—

For breakfast.—Stale bread or biscuit, with a minimum quantity of fresh butter, milk, and soda-water, in equal quantities to drink.

For dinner.—Lean meat once cooked, stale bread, one spoonful of mashed potatoes mixed with gravy, weak sherry and water to drink.

Tea.—Same as breakfast.

Supper.—A biscuit and a cup of beef-tea.

In ten days the stomach symptoms quite passed away, and the vertigo was much better.

I have quoted here the dietary, as a specimen of what is required in a case of moderate intensity. It was arranged to relieve the stomach without starving it.

Cupping on the back disperses gastric congestion, and is more convenient than on the epigastrium. At the same time, it may aid in adjusting the disturbed balance of circulation in the brain, which is hinted at by vertigo.

To recapitulate—I think the sensation of weight at the epigastrium is one of the most important evidences of a catarrhal state of the mucous membrane of the stomach. It may exist at all times, but the presence of food intensifies it by increasing the amount of mucus present.

Its spontaneous relief by vomiting when intensified by food indicates directly one of the most important parts of the treatment, namely, that the food should be as liquid, light, soft, and as quickly soluble as is consistent with a full amount of nutrition.

As in all catarrhs, alcohol is injurious; but in those who habitually take it, dilute wine and water must be conceded in the chronic treatment.

Local treatment of congestion by abstraction of blood and by blistering seems useful. It may be used when the amount of digestion still carried on and the appetite for food justify its employment. Even a considerable amount of anæmia need not contraindicate it.

The most efficient pharmacopœial agent is quinine, the conjunction with which also of strychnine seems likely to assist the

peristaltic muscles of the viscus in shaking off their adherent coat of mucus.

Where there is an obvious increase of discomfort very soon after food hydrocyanic acid is useful, not only as a palliative, but curative; for allaying the sensitiveness of nerves contributes powerfully to the dispersing of congestion.

SECTION VII.

Wearing pain.

When pain is constant, it assumes what is called a "wearing" character, that is to say, its effect is out of proportion to its intensity; though slight, it consumes away all the joy of life. This character is very marked in the case of constant even pain in the stomach. The patient may be known at once by the pitiable worn look of despair engraven on the countenance, what the French call *la figure grippée*. Considerable emaciation almost always accompanies it. The reason of this is the destruction of rest by night, for its restoration by opiates checks the emaciation.

There often occur shocks or stabs of sharp agony, darting across the chest or the walls of the belly, and sometimes they flash even into the arms and legs. These have been set down by some as distinctive of cancer. They are not so; I have seen them where simple ulcer was found after death, and I have seen cases of cancer without them.

Wearing pain is always in my experience increased by pressure, not always immediately, but after an interval.

The prognosis is bad; it is pretty sure to return, for it depends on some organic change of tissue which cannot be restored to its perfect condition. I cannot call to mind ever having seen an example of pain in the stomach wearing and constant, so as to interfere with the nightly rest, in which I have had reason from the future progress of the disease to infer a normal state of the gastric parietes.

In cases of ulcer proved by the fatal event, whenever pain has been noticed, it has been of this character. It is not indeed perennial during all the years that the ulcer has lasted, but it

is constant during the time when the degenerating movement is progressive, when the ulceration is marching onwards.

In nearly all cases where bloody vomiting otherwise inexplicable has rendered the diagnosis of ulcer the most probable one, there has been this sort of pain, occurring for considerable periods together.

Cancer of the pylorus causes this pain in the right hypochondrium, even before ulceration, quite as soon as any tumor can be detected by manual examination.

The distinguishing feature is its keeping the patients awake at night.

The situation of it on one side or another points out the locality of the tissue change.

If any gastric symptom has preceded wearing pain, the most usual is weight.

I shall have to cite cases of bloody vomiting, ulcer, and cancer, in another chapter, so I will simply refer to them in the place where they are going to stand. In the following there was wearing pain, which I treated and prognosticated as if there was structural lesion of some sort, though of its nature there was no evidence.

CASE CXXXVI.—Hannah W—, aged 34, a cook, was admitted to St. Mary's April 21st, 1854. She had a worn, unhappy look, and rather sallow complexion. Her body was a good deal emaciated from what it formerly had been. She had enjoyed good health up to about two months previous to her entering the hospital, at which period she was taken with a severe attack of vomiting—"a bilious attack." Vomiting had returned occasionally since, but not with the same severity. Her principal distress was a continued wearing pain in the epigastrium, which rendered her miserable throughout the day and broke her rest by night. It was increased by pressure, and to a certain degree by meals, unless the food was very soft and in small quantities at a time. She attributed it to the heat of the kitchen she worked in.

Opiates gave temporary relief, and helped her to sleep at night. So that, after a good dose of morphia, the tongue, usually coated with a white fur, was noticed to become clean.

Six leeches were applied to the epigastrium, six grains of bismuth given three times a day, and the diet restricted for a week to broth without meat in it, and to cold milk and water.

It appeared that previous to admission, the patient had been freely treated by means of purgatives, her bowels being very costive. They were entirely

left off, and in consequence the bowels opened themselves only once in five days. This rest seemed of great use.

On the 27th she found herself able to eat a bit of beef given her, and the next day some bread, so she was allowed to have it.

On May 2d she had lost her epigastric pain, and on the 6th was able to return home. On the 20th she came to show herself to me, and to report that as yet she had no return of the pain.

CASE CXXXVII.—Hannah P—, aged 48, was admitted to St Mary's August 17th, 1855. She was the wife of a laboring man, unable to work by reason of paralysis, and she had for some time supported him by going out to field labor; so that she lived very hard, and, moreover, had lost thirteen teeth, so that even the rough food she did get was improperly chewed. Up to the previous February, however, she had been in strong health. Then she began to suffer pain in the epigastrium at odd times; but it did not prevent her earning her wages till the summer, when it became constant, and she was entirely invalided, partly from the pain and partly from giddiness and a feeling of prostration.

On admission her countenance was worn and sallow, her appetite was good, the pulse small and weak, the tongue cleaner and redder than natural, the bowels costive. The pain at the epigastrium was constant, and increased by pressure. She complained of want of sleep.

At first she was treated with hydrocyanic acid, but no benefit at all resulted. Then a blister to the epigastrium, on which great relief immediately began. Then she had a grain of opium every night and the following draught:—

R.—Misturæ Ferri co. fl ʒj.
Acidi Gallici gr. iv.

Ter die.

She was able to take a pint and a half of milk with lime-water in the day, and egg and other diet as well. But she did not lose her pain in the stomach till I cut her down to the milk and lime-water only, and gave her a drachm of bismuth three times a day. The latter prescription and the keeping of the blistered surface open for a month was at last successful, so that on September 19th she was able to begin eating half a mutton-chop daily, and on the 28th was discharged.

CASE CXXXVIII.—Mary Ann S—, aged 32, admitted to St. Mary's January 23d, 1855, attributed her illness to debility induced by her last confinement. She became subject to pains in the epigastrium, which came on about once a fortnight and continued without intermissions during the period of the attack. One of these attacks had commenced on the 18th, when the pain was general across the pit of the stomach. On the 19th it passed over to the right side, where it became fixed and constant. She attributed this attack to a meal at which she ate both rice and potatoes. It had much diminished on her admission to the ward.

On examination of the abdomen there was found a circumscribed spot to the outside of the right rectus abdominis muscle, and within two inches of

the costal cartilages, which was excessively tender on pressure. This spot appeared also somewhat tumid and tense; the patient said it had been more tumid two days before, and had been reduced by the application of a sinapism. There was resonance on percussion between this spot and the liver, the extent of whose dulness was quite normal.

Six leeches were put on the epigastrium, followed by the continuous application of a bran poultice. She had gr. xv of bismuth three times a day, and a diet of milk and lime-water, with a pint of beef-tea daily. She entirely lost her pain, but eating a bit of meat at supper on the 31st brought back a short relapse, which was immediately checked by the fresh application of half a dozen leeches. She was made an out-patient on February 2d.

CASE CXXXIX.—Sarah B—, aged 40, was admitted to St. Mary's March 11th, 1864. She had suffered seven years from frequent attacks of continuous pain in the epigastrium, sometimes accompanied by vomiting; and sometimes the vomiting had contained blood, though it did not do so when in hospital. She had found by experience that hot food was apt to bring on these attacks, and that the danger was closely proportioned to the degree of temperature. She had consequently acquired the habit of taking everything cold and iced if she could get it. (My notes of this case are imperfect.)

CASE CXL.—William G—, aged 33, country gentleman, February 1st, 1866. He had suffered for eight months from almost constant pains in the right side of the epigastrium, which is increased by pressure and by external cold. His countenance has got sallow, and he has lost more than fourteen pounds in weight. He has no cough, and the chest seems healthy. On manual examination of the painful spot it is resonant on percussion. The bowels are costive. They were regular before he took a quantity of mercury and purgatives. The pain was increased by riding, but not by food. His rest is broken by it. He does not vomit.

I put him on two grains of quinine dissolved in lemon-juice, with three minims of hydrocyanic acid twice a day, and sent him to Bath till March 5th.

By that time the constancy of the pain was much abated, and he was enabled to ride without increasing it. He had gained two pounds in weight.

He continued to improve till the middle of May, when he returned to his home in Lincolnshire, a low aguish district, and almost immediately relapsed and returned to me in London. He said he had found several times before that a visit to Lincolnshire made him worse, but he thought the summer weather would make it safe. To keep him out of harm's way I have recommended him to travel for a year or two, as it is to be feared these relapses may constantly occur on exposure.

CASE LXVI (page 102) is another instance of continuous gastric pain, there induced by pressure, treated as indicative of structural change and congestion, though no hæmatemesis or other form of vomiting was present. In that case notice again the broken sleep.

Remark in CASE CXXXVI the attribution of the disease to temperature. There is no doubt it greatly increases the pain, and I have cited the imperfect CASE CXXXIX for the purpose of remarking that hot food does it as much, or even more sometimes, than external heat.

CASE CXXXVII is an instance of what must strike every practitioner, that poverty and low living tend more to the production of disorganizing lesion than full living. Almost all our cases in which we can reasonably diagnose "chronic inflammation" of the stomach are poor people. Where opium is required, I do not find it increases constipation.

In CASE CXXXVIII I suspected there were some external adhesions of the peritoneum in the pyloric region, as where these exist you find an external tumefaction of the part varying with the amount of immediate congestion, such as was observed in this young woman.

In CASE CXL remark the effect of a damp lowering climate in reducing the vitality of locally degenerated tissues.

SECTION VIII.

Soreness on pressure.

Soreness on pressure is so generally in all naturally insensitive parts an indication of structural change that we all of us as a matter of course apply this diagnostic sign to the organs of digestion. Where it is constant in any one part, independent of the presence of food, and proportioned in its degree to the amount of pressure, it appears to me pathognomonic, and can hardly arise from any other cause. It is sometimes immediate, and sometimes does not come on till the lapse of a certain interval. In the former case there is a little vagueness in the sign, for some people are so much more sensitive than others, and object so to having the epigastrium pressed, that they cry out without sufficient occasion. Care is requisite not to be deceived by this hyperæsthesia. The pain which comes on after an interval, on the other hand, is a very determinate symptom, and is never simulated or imaginary. It gives very accurate information that an organic change of some kind has taken place in the structure of the stomach.

Whenever, then, tenderness on pressure constantly exists, whether accompanied or not by constant or wearing pain, and whatever the other symptoms may be, whether heartburn, waterbrash, or weight, I think we are justified in employing local alterative means, mustard poultices, blisters, leeches, or cupping. Water compresses are not so efficient; I think those who fancy they have found them useful must have fallen in with other forms of gastric pain and mistaken them for tenderness.

An all-important part of the treatment is complete rest. The action of this may be seen by the rapidity with which the patients got well in the hospital.

Tenderness on pressure does not contraindicate an analeptic restorative treatment being conjoined with the local. Indeed, it demands it. Numerous instances of this may be seen in cases already cited, perhaps the most striking, from the symptoms being capable of being depicted in number and weight, is CASE XCVI, of a young Irish woman, who gained twenty-one pounds of flesh in twelve days, in spite of being leeches every other night during nearly all the time for waterbrash, with intermittent pain at the epigastrium and tenderness.¹

Pain felt only on pressure in a part does not require any palliatives, except not to press. This is a platitude perhaps; but still both doctors and patients are the better for having the fact brought to mind, since these out of anxiety find it difficult to keep their fingers away, hoping each minute to find the pain gone, and those are tempted by a love of accuracy, hard to blame, into a needless frequency of examination.

SECTION IX.

Anomalous pains.

CASE CXLI.—Mrs. S—, aged 40, used to come to me frequently in 1849 with a daughter, whom I was attending for cutaneous disease. One day, though at the time in perfect health, she desired to consult me about a curious pain in the pit of the stomach, which from time to time assailed her. It came on gradually, was not severe enough to lay her up, but constant and worrying while it lasted, namely, for about a week or ten days at the most. The first thing I made out about it was that it usually succeeded to any

¹ See page 137.

mental worry or unusual bodily exertion for several days. On further inquiry I found it invariably coincident with the catamenial periods, which, however, were regular, not excessive, and accompanied by even less pain in the loins, uterus, or groins, than most women accuse. It appeared in fact to be a dysmenorrhœic pain, misplaced at the wrong end of the abdomen.

I gave her a course of quinine and iron for the nonce, and desired her to take a special dose of hydrocyanic acid and opium if the pain came on again. This seems to have been successful, for though she brought her daughter several times during the next year she said no more about herself.

Though she appeared in perfect health, the mere fact of having an anomalous pain showed weakness and constituted the periodical discomfort which is the normal portion of the sex, or *dys-menorrhœa*.

The above is a specimen of the most usual degree in which uterine pains are felt in the stomach, but sometimes they are more serious.

CASE CXLII.—Jane R—, aged 25, a housemaid, was admitted under me at the hospital February 16th, 1852. She was a personable robust country-woman, who had lately come up to service in London. Her tongue was clean, her pulse 84, full and strong, her skin normal, her urinary and fecal excretions reported natural. Her mistress said that for three days Jane had complained of pain in the lower part of the chest in front. That it was increased by food, and consequently she had "eaten nothing," that is to say, had taken only liquid food. She got an out-patient's letter to the hospital, but on her way to use it was taken so much worse that she was obliged to be admitted.

She sat up in bed rubbing her epigastrium with her hand, and expressed herself as in great pain. Rubbing, however, gave her no relief, nor did pressure; but it could be borne without any increase of pain.

The catamenia had been absent two months. A large linseed poultice was applied to the abdomen, she took a four-grain calomel powder immediately, and a senna draught three hours afterwards. The same day the catamenia occurred, not copious (they were never so, she said), but sufficient, the pain instantly ceased, and she was well enough to be discharged on the 18th.

The disgorging of the portal veins, by a mercurial and a purgative, is a capital way of bringing on the catamenia in a robust, full-blooded person. Remember, however, that I do not recommend it in those more common cases where the amenorrhœa is merely an evidence of the absence of menstrual blood to be discharged.

The retention of feces in the bowels is frequently assigned by the public as a cause of pain in the epigastrium. Their fondness for purgatives doubtless often leads to error on this head, but still I do think they are sometimes right, and that the mere retention in the colon and rectum of matters ready for evacuation may give rise to considerable pain in the epigastrium. It is not very easy to hit upon a good illustration of this, for most usually costiveness and even constipation depend on some morbid condition of the stomach or of the whole alimentary canal or of the whole body, and it is difficult to separate the effects of the retention from those of the condition which has engendered it. Thus, for example, you will find that nearly all the chronic cases quoted in the first chapter had confined bowels, but no one would attribute the epigastric pains to that cause, seeing that an obvious indigestion existed in the stomach, the seat of those pains. In the following case, however, the cause of the retention of the feces was quite extraneous, and there was no proof of anything being the matter with the digestive organs.

CASE CXLIII.—Anne M.—, aged 23, a domestic servant, was admitted to St. Mary's October 15th, 1856, complaining in various parts of the body of obscure pains, which, however, after admission, seemed to have their definite seat in the epigastrium, and to be worst always after food. She had palpitation of the heart, nausea, and a tendency to faint. Her face was flushed, the skin hot, and the tongue coated; but otherwise her aspect was healthy. After a few days the nurse observed that her linen was stained, and the patient herself stated that she had a vaginal discharge. But digital examination found the organs of generation quite normal, and that the pus came from a small papilla, the remains of an old hæmorrhoid, on the edge of the anus. This was exquisitely sensitive, and the patient confessed that she had voluntarily retained her feces on account of the pain which defecation gave her. Warm baths and softening enemata, with the aid of valerian draughts, reduced the hyperæsthesia, and with the emptying of copious solid stools from the colon the pain at the epigastrium ceased, and she got good rest at night.

In cases of misplaced pains, I mean pains not in the locality of the parts truly affected, valerian is a very useful medicine. Its calmative effect on the nervous system is remarkable. That was the reason of its administration to this young woman. It would have been cruel to forcibly open her bowels by purgatives, without first deadening the abnormal sensitiveness which had caused her to constipate them.

These three cases are typical instances of the most common pathological states at a distance from the stomach, which cause pains in that organ without otherwise deranging it. I have no cases to quote which may not be referred to either the colon or uterus.

CHAPTER V.

VOMITING.

SECTION 1.—General remarks on the physiology of the process. SECTION 2.—Vomiting of pus. SECTION 3.—Vomiting of mucus. SECTION 4.—Vomiting of blood. SECTION 5.—Acid fermentation of vomit. SECTION 6.—Fecal vomiting. SECTION 7.—Vomiting of unchanged food. Hysterical vomiting. SECTION 8.—Vomiting in pulmonary consumption. SECTION 9.—Occasional causes of vomiting. SECTION 10.—Sea-sickness. SECTION 11.—Review of remedies employed.

SECTION I.

General remarks on the physiology of the process.

IN the normal passage downwards of food the involuntary nerves and muscles of the fauces, the gullet, and of the stomach are in vigorous action; whilst the voluntary abdominal muscles and the diaphragm exert no influence over the digestive canal.

In vomiting a converse condition exists—the involuntary œsophagus is wholly or partially paralyzed and relaxed, the involuntary peristaltic wave of the stomach ceases, and at the same time the diaphragm and abdominal muscles are degraded from agents of volition to purely automatic instruments.

The ceasing of the peristaltic wave allows the pylorus to close. It is converted from a portal somewhat stiffly held open by the circular fibres (as if in a sort of erection) into a collapsed valve. The pylorus being closed and the cardia open, it would not require any such very strong muscular effort to empty the stomach.

But the muscles thus abnormally perverted into compressing the stomach are very large and powerful. Hence vomiting is a violent and explosive act.

In spite, however, of the violence and explosiveness, a correct pathology must look upon vomiting as a lowering of the vital powers, as an atony of the digestive tube and its appendages,

when the facts are put in the light and order above sketched out.

Thus it becomes clear why vomiting is an accompaniment of so many states in which there is a diminution, or arrest, or paralysis of muscular action. Unusual or too long-continued bodily exertion, exposure to cold or heat, and such-like circumstances peculiarly exhaustive of muscular and nervous power, before eating even a moderate meal, will in some persons cause it to be ejected.

The same result follows in fainting, or when, from excessive mental emotion, the nerves of the gullet experience a temporary paralysis; so that vomiting is produced by disappointment, anxiety, nay sometimes even by sudden joy and pleasure. Still more strikingly is it brought on by structural disease of the stomach, by which the peristaltic wave is arrested, or at least interfered with. Or by a stoppage of the same in the intestines, such as occurs in ileus, hernia, intussusception, and peritonitis.

Vomiting in these latter cases has been sometimes referred to a reversal of that muscular act which carries the alimentary mass onwards—to an *anti*-peristaltic motion. But there seems to me no evidence that such is the case; indeed, an attentive consideration of the phenomena of the act itself would seem to show proof to the contrary. Observe peristaltic motion—it is slow, continuous, and uniform; possessing indeed strength in its persuasive steadiness, but no irresistible impetus. Compare the two, and note the difference: in vomiting we have a violent explosive power, like a force-pump, throwing the ejected matters out to a considerable distance. Can there be a greater contrast between two acts of the same part? The explanation given above seems much more naturally to suit the phenomena.

In some cases the atony is general, as in vomiting from cerebral diseases of a paralytic character. In others it appears to be more local, as for example in the action of emetics, where the force of the agent falls mainly on the stomach, and secondarily on the limbs; and possibly in some it may be entirely local—an approach to which is made in the quickly acting emetics, such as sulphate of zinc, which therefore produces much less depression than most other medicines of the same character. But in all there is sufficient reason to consider the muscular

state in vomiting to be one of relaxation or atony, and to view as the main muscular manifestation of atony in the stomach a tendency to vomit.

Vomiting seems less dependent upon the previous or chronic condition of the stomach, and more upon the idiosyncrasy of the individual, than any of the phenomena already discussed. There are dyspeptics who, whatever may be the matter with them, never throw up their food; whilst others do so on the slightest occasion. Even pleasant associations will, in some people, bring on this most unpleasant consequence; an occasional patient of mine, a healthy young lady, has been sometimes taken with retching on entering a ball-room where she expects an agreeable evening, whilst it never happens in going to a stupid party. On the other hand, I have had patients with cancer of the stomach, and others with various sorts of severe dyspepsia, who could take the most repulsive drugs without inconvenience. The mere fact of vomiting, therefore, affords in itself no clue to the local condition of the stomach. But the time of its occurrence, the circumstances which increase it, and the nature of the matters thrown up, may be most suggestive to the practitioner.

Vomiting when the stomach is empty, or that which, though it accidentally occurs at other times, is most frequent and distressing then, may be safely set down as arising not from any fault of the viscus itself. Such is the morning sickness frequent in pregnant women, in cases of diseased heart, of abdominal tumor, and sometimes of pulmonary consumption. This has been explained as a reflex action of the vagus nerve excited by the irregular irritation of some of its branches; and on the same principle may be interpreted the more rare cases where it has been caused by foreign bodies in the ear or nose, by tumors in the neck, &c.

When it occurs with a full stomach, we may reckon, as a general rule, that the smaller the quantity of food that produces it, and the sooner it takes place after eating, the nearer to the mouth is the cause. An ulcer of the œsophagus causes rejection of the food before it has got down; of the cardia, or smaller curvature, very soon after it has got down; and a

similar lesion of the pylorus or liver, after an interval sometimes of several hours.

When vomiting arises from the paralysis of the œsophagus which is induced by a congestion of the brain, as in apoplexy or drowning, or by poisoned nerve, as in dead drunkenness, it is increased by the horizontal posture; when it arises from deficient supply of blood, as in fainting and anæmia, that same position relieves it. Sea-sickness also is often warded off by lying down with the head low.

The contents of vomit may often afford valuable indications to the practitioner, and will appropriately divide into classes the cases he meets with. They will here serve the purpose of the headings of sections.

SECTION II.

Vomiting of pus.

CASE CXLIV.—Elizabeth S—, aged 25, was admitted at St. Mary's January 23d, 1852. She had suffered for three months from vomiting, at first occasional, but latterly at every meal, so that, in spite of a good appetite and plenty to eat, she had grown pale and thin. After this had continued a month she began to experience a difficulty in swallowing, which has gradually increased, though the pain caused by it is not so great. The mouthful seemed to lodge somewhere at the back of the manubrium of the sternum, and either to be rejected or retained with great pain, which ran through to a spot between the shoulders. Besides this, she used to have occasional retching and occasional vomiting of glairy and frothy matter, with opaque streaks of pus in it not unlike the sputa of early phthisis.

Gruel, arrowroot, cocoa, raw eggs, and milk, were swallowed and kept down, so that she was occasionally not sick for a day or two together. Dry bismuth powders she also kept down, and thought they relieved pain. But sulphate of copper made her vomit on each occasion that it was tried, as was done several times with the idea of stimulating the ulcerated surface to healing action.

At length she seemed to catch a cold on the chest, and died suddenly after breakfast one morning.

On examination after death its immediate cause was found to be the opening of a fistulous communication between the ulcerated surface of the œsophagus and the pericardium, by which pus and food had made their way into the serous sac.

The stomach, &c., were healthy.

The pus in the vomit here doubtless came from the cellular

tissue around the œsophagus, which was being eaten through by the fistula.

Remark in passing the use of which bismuth seemed to be to the raw surface. Some persons have found it of equal use in phthysical diarrhœa from ulcerated bowels. I confess I find it in this latter disease less efficient than sulphate of copper; but in the upper part of the digestive canal the comparative force of the two drugs would seem to be reversed. Another instance of the use of bismuth in ulcerated œsophagus will be quoted afterwards (CASE CLXXXVII). I felt considerable satisfaction that this poor woman never had any probang put down her throat. It would have thrown no light on the diagnosis, and might have gone into the pericardium and been the cause of death. *Imprimis non nocere* is the first commandment in medical morals:

CASE CXLV.—James G—, aged 32, dairy-man, admitted to St. Mary's June 27th, 1856, after an illness of a month, during which he had attended as an out-patient. He complained of soreness of throat and of difficulty of swallowing solids. He said he never vomited, but after admission he began to throw up a considerable quantity of pinkish or flesh-colored purulent matter. Sometimes it was ejected by retching, sometimes with less effort. There was nothing abnormal to be seen or felt in the fauces or upper part of the œsophagus. After he had been in for a fortnight a small tumor of cartilaginous density was felt behind the ramus of the jaw, just below the right ear. During the time he remained in hospital he had a laurel-leaf poultice to the neck and cod liver oil; but as no conscientious hope of future amendment could be expressed, it was not thought right to occupy the much-wanted space in the ward with an incurable case, and so I lost sight of him.

There could be but one end to what was indubitably a cancerous ulceration of the œsophagus, and I do not think a hospital ward is the happiest place in which to await that end; so neither for the patient nor the public do I think it right to retain such cases in a charitable institution. It is quite different where any doubt exists about the diagnosis.

CASE CXLVI.—Edward J—, aged 56, greengrocer, was admitted into St. Mary's November 16th, 1857, complaining of pain in the left side of epigastrium immediately after eating. This was relieved by vomiting. His illness had first come on during a voyage to America the previous April. Previous to that he had always enjoyed good health, and weighed 12 stone; but now he was reduced to 9 st. 2 lb. His vomit usually consisted of his food; but

On one occasion he ejected a quantity of creamy pus mixed with a strongly acid fluid.

A hard tumor was discovered below the cartilages of the ribs on the left side.

He left the hospital December 14th, probably dissatisfied at the little relief it was possible to give him.

These are the only cases I can find where there was pus in the vomit, viz., common ulceration of the œsophagus, cancer of the œsophagus, cancer of the cardia. It does not appear to be thrown up in common ulceration of the stomach, still less in catarrh of the stomach. The gastric and œsophageal mucous walls are very different from the bladder or urethra. These secrete pus on the slightest irritation; an undue stretching, a hard substance, however smooth, an essential oil, moderate alkalinity of the urine, the infection of a catarrh so weakly poisonous as gonorrhœa, and other equally mild forces, arrest their vitality down to the pyogenic stage. The fauces, gullet, and stomach are much tougher; fortunately indeed, for if stretching, hard substances, spicy oils, alkalies, or acids hurt them, or if moderate doses of morbid or common poisons acted on them locally, who would insure a man's life for a week? To purulent inflammation they are not prone, and therefore we cannot expect to find pus in that which is ejected from them in their usual diseases. When there is pus in vomit, either a malignant tumour has destroyed the walls and taken their place, or there is an ulceration with adhesions into the surrounding cellular tissue.

Care should be taken to ascertain the condition of the lungs, and make sure that the pus does not come from a vomica, the emptying of which will sometimes be accompanied by vomiting.

SECTION III.

Vomiting of mucus.

Mucus is found in the vomit in what is called English cholera, or acute summer gastric disorder.

CASE CXLVII.—Edmond K—, aged 18, was found by a policeman at half past six in the morning of September 24th, 1851, staggering against some palings, and unable to walk, from a violent pain in the belly, which had suddenly attacked him on the way to work. He was taken to St. Mary's, and

kept vomiting mucus and bile all day. The pulse was 90, the tongue dry. Pain on pressure of the epigastrium.

No collapse, cramps, or retention of urine occurred. He had a dose of calomel immediately, followed by diarrhoea; a dose of opium at night; and was discharged well next day.

The green matter in the vomit of these acute attacks is shown to be bile by its bitter taste to the patient, and sometimes by its smell to the bystanders. The presence of bile is a proof of previous health, and an assurance that the cause which is disturbing it is a temporary one, however severe it may be, and that the vitality is not deeply smitten. You do not see it in the vomiting of chronic disease, you do not see it in that of fatal, epidemic cholera; but you do see it thrown up by the hearty landsman who is roaring over the gunwale of a Channel steamer, and it is hailed as a good sign in a convalescent from cholera collapse. Give an emetic to a healthy man, and you see plenty of bile; give it to a broken invalid, and you most likely will not. Bile, then, is to be looked upon as a bird of good omen. It is regurgitated from the liver into a fairly healthy stomach, and not into an unhealthy one.

Mucus, mixed also with bile, is thrown up in those less severe exhibitions of gastric disorder which are called "bilious attacks."

CASE CXLVIII. John D—, a retired schoolmaster, aged 55, became my patient February 7th, 1863. For at least ten years he had been subject to "bilious attacks," occurring in the winter, and generally half-a-dozen times each season. He described them as commencing with a hawking up of phlegm; which phlegm did not seem to come from the air-passage, but from the gullet. This usually took place of a morning; and in the evening a severe attack of headache came on, and a vomiting of phlegm and bile. He came to me because he found them getting more frequent and severe, and because he began to doubt if the traditional mode of treating them with purgatives were really the best. I put him on quinine and strychnine, and saw him again on the 23d. He said that in the mean while he had been threatened with a bilious attack, but it had been warded off, he thought, by the medicine. I heard of him in 1866 from a relative as a much heartier man than he used to be.

The summer gastric disorders, which I first exemplified, are probably brought on by the absorption into the body of some poison diffused through the air or water, and which, when wide-

spread and intense, constitutes the terrible epidemic cholera. They fall on the robust equally often with the weakly. These winter bilious attacks are more like what we called "catching cold," and are certainly induced by changes of temperature in damp climates. Like colds in the head or chest, they affect delicate-formed and delicate constitutioned persons principally. Much may be done, therefore, to ward off the attacks by strengthening the constitution. Quinine and strychnine is the best treatment; purgatives do harm. I say purgatives do harm, because an unprofessional friend of mine, who used formerly to be treated *secundum artem antiquam*, finds even homœopathic treatment better than purgatives; and restorative treatment would be still better than homœopathic, would she but try it.

Another thing which seems to me a broad hint against purgatives for "bilious attacks" (by which I mean attacks of gastric catarrh in a body healthy enough to eject bile by vomiting) is, that where there is purging arising without the aid of drugs, the sickness lasts much longer than if there is none. He must be, indeed, a devoted admirer of the pharmacopœia who imagines that the artificial diarrhœas excited by its help can do good where nature's diarrhœas do harm. Compare the more usual forms of bilious attack of which I have quoted examples with the following:—

CASE CXLIX.—Elizabeth J—, a domestic servant, aged 32, came into St. Mary's October 18th, 1855. Since the first week of the month she had complained of headache and weight at the epigastrium, and on the 10th was seized with diarrhœa, which still continued, though less severe than at first. On the 17th she was, in addition, attacked with pain in the epigastrium and vomiting, which was very frequent on admission. The pain was much relieved by mustard cataplasms. The tongue was red and clean, the pulse weak and quick. The motions were green, and the vomit was green too, with shreds of mucus stained with port wine that had been administered to her.

The vomiting was somewhat appeased by hydrocyanic acid in effervescing draughts; and she also took some chalk and opium, with a little gray oxide of mercury in it. But the vomiting did not cease till the 20th, after which she began to amend, asked for food, and was able to get up on the 22d, and to leave for home on the 26th.

CASE CL.—Anne G—, aged 49, was admitted July 31st, 1857. She had been in her usual good health up to a month previously, when she caught cold from exposure, and distressing nausea and vomiting ensued, which in a

few hours was followed by purging; the stools being watery, frothy, and free from offensive odor. The skin then was cool, her tongue clean, the pulse 85. The purging continued at the rate of four motions daily. She vomited after each attempt to eat; the ejecta being green and yellow, mixed with clots of mucus and undigested food.

The patient had also considerable anasarca of the lower extremities, and she suffered from palpitations. The force of the heart was weak, but the sounds natural, and the lungs healthy.

She was treated without drugs, but had five grains of pepsine powder three times daily, half a pint of beef-tea, and milk diet guarded with lime-water, food being administered in small quantities every three hours.

By the 8th of August she was so much better in all respects, that she was able to eat mutton chop, and to take a grain of quinine dissolved in tartaric acid three times a day.

On the 12th she had the full hospital diet. The bowels having become costive, an aloes and myrrh pill was ordered every night.

On the 15th, there being still some pain at the epigastrium complained of, the solid diet was reduced to half, and a pint of beef-tea given for supper.

There was also, on the 17th, a threatening of return of diarrhœa; but it was promptly stayed with chalk mixture, and she was discharged well on the 19th.

Remark how in the first of these two cases the preceding diarrhœa did not prevent the occurrence of stomach symptoms, and how long they endured in the second case where the diarrhœa had come on at the same time.

I abstained from perturbative practice during the height of the disorder, not out of scepticism in the pharmacopœia, but the contrary; there was no physical condition capable of establishment by its means which I would induce.

The costiveness of the bowels after a natural diarrhœa is a very usual reaction. Had astringents been given, one might have attributed it to them.

The weakness of this patient was shown by the anasarca; but we had no reason to suppose that there was any chronic degeneration of the viscera, or she would have been retained in hospital.

In the next case the character of the disease is much more chronic.

CASE CLI.—*Helena F*—, a domestic servant, aged 40, was admitted February 25th, 1858. Since the beginning of December she had complained of uneasiness at the epigastrium after meals, accompanied by nausea. Six

weeks before admission she began to relieve the feeling of weight by vomiting her food several times a day, and in the morning to vomit frothy and stringy matter occasionally streaked with blood. She never threw up any clots of blood, and it was always of a dark color. Since her illness the catamenia had ceased, having been previously copious and painful; she had got very much emaciated, and in good truth she presented an aspect closely resembling that of pulmonary consumption. But stethoscopic examination of the chest showed it to be quite healthy, and she had no cough.

The absence, however, of cough is no proof of the absence of pulmonary lesions in the sort of case which at first blush hers seemed to resemble. For instance—

CASE CLII.—Mr. J. P— came to me May 30th, 1860, complaining of flatulence, and of uneasiness without pain in the epigastrium, and of having become muscularly weak and nervous. He frequently threw up, as he said, from the stomach, stringy mucus, especially after eating. But it was not mixed with food in general. He had no cough. He remained under my care till the 10th of June, when I examined his chest and was obliged to tell him that I found bronchophony, crackling râles, and dulness on percussion at the apex of one lung. He seemed dissatisfied with the diagnosis, and I did not have another visit.

I should like to have made out for sure whether the mucus really came from the stomach, or whether it was the contents of the bronchi thrown up by a nauseating effort instead of a cough. Vomiting certainly does occur in phthisis, and the vomit contains mucus. But that mucus is also often purulent, which gastric mucus rarely is, so that it is probably swallowed or ejected from the bronchi by the emetic strain.

Such cases as the last should remind us always to examine the chest, cough or no cough, in any forms of disease which are ever associated with consumption. And the only way to guard one's self from the imputation of mistaking the disease is to declare the diagnosis to somebody at once, for the patient will often break down very suddenly while you are casting about for an opportunity of letting his state be known.

SECTION IV.

Vomiting of blood.

The immediate symptoms differing from ordinary vomiting which precede and accompany the vomiting of blood are described in the annexed cases.

CASE CLIII.—May 13th, 1862. Mrs. H—, aged 42, awoke at two in the morning, feeling very hot and restless: a sudden faintness and dread came over her; she felt sick; the sickness felt somewhat better, and she got out of bed. Almost immediately, if not in the very act of rising, a flood of blood or bloody fluid gushed up from the stomach. She had not previously considered herself an invalid, but had for several months had irregular catamenia, and for three days before her attack had experienced a dull pain at the epigastrium and right shoulder. On examination of the epigastrium, it was painful on pressure, but not one spot more than another. A feeling of nausea was excited by the examination, and also by taking food. The tongue was somewhat dry. She did not bring up her food; not even when the swallowing a cup of hot tea suddenly (on the 16th) had caused her to retch violently.

A pill was administered on the 13th containing four grains of acetate of lead, and on the 14th she was ordered

R.—Acidi Sulphurici diluti ℥ xx,
Olei Terebinthinæ ℥ x,
Infusi Hæmatoxyli fl 3j, ter die—

and had no return of vomiting.

CASE CLIV.—James P—, aged 37, was admitted into St. Mary's Hospital May 4th, 1860. He had been long subject to vomiting, and had five times vomited blood, for the last time the night before admission. The blood, he said, always came up with a sudden gush, and was dark in color. He described the symptoms preceding the hæmatemesis as commencing with headache and pain in the right side; after this he felt heavy and drowsy; then he got giddy; and then the blood came up.

The tongue was dry and furred, the pulse 92 and bounding. The pulsation of the aorta in the epigastrium was very distinctly felt.

(Further particulars of the history of this man may be found at page 103, where his case is repeated on another account.)

The above are the ordinary symptoms which occur without prognosticating any immediate danger. Where a fatal result is to be feared, they are more severe.

CASE CLV.—Hannah H—, aged 48, a cook, was admitted to St. Mary's June 24th, 1852, for hæmatemesis. She said she had brought up a great quantity of fluid blood the day before, and that while she was throwing it up, she felt complete inability to move her limbs.

While in the hospital, between that date and July 3d, she several times vomited blood, the vomiting always coming on quite suddenly without previous warning, but being followed by deadly faintness and by an increased pallor of face. On the last-named day, as the house-surgeon was going his morning rounds, he saw her suddenly turn paler, and so he laid her back on the pillow. In ten minutes after she threw up a quantity of liquid florid blood, mixed with clots. She did the same an hour afterwards, and again in

the evening. She continued hiccuping, lay with her brows knit, but in no pain. The pulse rose to 136, the skin grew burning hot, the tongue coated with a white gelatinous fur. The voice was reduced to a whisper. In this state of hemorrhagic fever she continued, without becoming comatose, till she died, about fifty-five hours after her last vomiting of blood.

Post-mortem.—It was found that an ulcer had eaten into the coronary artery.

The symptoms may be nearly as severe in cases which do not ultimately prove fatal.

CASE CLVI.—May 24th, 1848, I was summoned to see Mrs. M—, aged 82, who had fallen down that morning in a sort of fainting fit. On recovering herself, she threw up, as was alleged, from the stomach about a wineglassful of blood. The tongue was dry, and in the centre brownish. The epigastrium was painful on pressure. The pulse exhibited the largeness and loose sharp stroke distinctive both of the hardened arteries of old age and also of hemorrhage, both which factors probably were united in this patient.

The next day the tongue was quite dry and brown, and the abdomen more painful on pressure. She had vomited a great quantity of red and black blood, and passed a number of black stools.

On the 26th the tongue got moister. On the 27th she again fainted, and her face became anxious, and the tongue dry and brown. I thought she would vomit blood again, but no, she only passed it in a black stool. On the 28th she was better again, and with one more relapse on the 29th she finally recovered, and had no return of bloody vomiting, though she lived several years afterwards.

The treatment had been lemon ice, bark, alum, opium, and sulphuric acid.

She must have had a very vigorous constitution to have survived such a serious illness at such a time of life.

Apropos of age the following case may have an interest, for I think it is the next oldest patient with this complaint that I have had under my charge.

CASE CLVII.—Elizabeth A—, aged 60, was admitted into St. Mary's August 21st, 1855. She called herself a strong healthy woman, though subject to occasional "bilious attacks" and ruptured on one side. After feeling a weight in the belly for a week, she had on the 11th vomited a small quantity of blood. On the 18th she again vomited, and this time nearly a quart of blood, bright-colored and with clots in it, but not frothy. There was slight pain on pressure of the epigastrium, but this she said was much more severe at the time of the hæmatemesis. She also passed black blood by stool. The hepatic dulness was normal.

She was but little pulled down by her attack. So, after a fortnight's rest in the hospital, she went out.

Vomiting of blood may occur again and again without risking life.

Sometimes it is an annual affair.

CASE CLVIII.—A lady's maid, Sarah S—, aged 33, was admitted to St. Mary's September 10th, 1852, for constant wearing pain at the epigastrium, made sharp by pressure or by eating, vomiting and emaciation. She had also suffered from waterbrash of clear fluid, and acidity. She said that in every spring for the three years previous she had had an attack of bloody vomiting. She attributed it to her having worn a long busk to her stays,¹ which consequently she had left off.

CASE CLIX.—Henry A— came under my care at St. Mary's in November, 1862, having in October, on two occasions, in going home from his work, thrown up what seemed to him near a pint of blood. The same patient had, in October, 1861, also been in St. Mary's for hæmatemesis. It is right, however, to remark that he had emphysema of the lungs as well; so there might perhaps be a question about the certainty of the diagnosis of the blood coming from the stomach.

In the following cases there were intervals of three and four years.

CASE CLX.—In the middle of September, 1855, Salina Y—, a widow of 48, was woke up at two in the morning by a single attack of profuse hæmatemesis. She was my patient at St. Mary's for the weakness thence arising, but she was not alarmed at the occurrence, as she had been ill in the same way three years previously.

This woman experienced again another gush of blood in October, 1859, and was under my care at St. Mary's afterwards. Whilst in the house she had waterbrash one morning, and ejected a cupful of clear aqueous fluid with streaks of red in it. She reported that in the interval of the two admissions she had lost no blood.

It is remarkable that in this case there was no tenderness of the epigastrium.

CASE CLXI.—Catherine C—, a servant, aged 28, was admitted to St. Mary's October 19th, 1858, for an attack of hæmatemesis which had just occurred. She described herself as a person of good constitution and strong body, but she acknowledged to having had a similar illness three years previously, which had reduced her more than the present one. The ejecta had consisted of what seemed to her a pint of blood, at about 4 P. M. on three successive afternoons, with very slight antecedent symptoms.

Again a longer interval.

CASE CLXII.—Elizabeth F—, a servant, aged 23, retched up a tumblerful of blood a few days before her admission to St. Mary's, May 30th, 1862. She

¹ See Chapter III, Section IV.

said the same thing had happened eight years before to a greater extent, and that ever since she had, besides irregularity of the catamenia and debility, suffered from time to time with sickness after meals, but had not seen any red in it till the present occasion, a few days before admission. She had again several attacks of vomiting whilst in the hospital, but threw up a sanguineous fluid.

CASE CLXIII.—At the beginning of February, 1862, I was requested by Sir Ranald Martin to meet in consultation on the case of a gentleman about 60 years of age, who was gradually dying of excessive vomiting. He was an old Indian, and he described the first beginning of his gastric ailments, leastwise the first thing which drew his attention to the stomach, to be an attack of hæmatemesis thirty years previously. Twelve years after that he had another, and two or three at shorter intervals which I forget. But during the final attack of vomiting, of which he died in the course of the spring, he lost no blood, the cause of death being the excessive exhaustion and emaciation only. It was diagnosed all along, and proved by autopsy, to be due to gastric ulcer.

It would probably not be difficult to fill up all the intermediate years with instances, but those quoted are enough to show that blood in the vomit is not by any means a sign of immediately impendent danger. It really would seem, unless those bad symptoms detailed in the two consecutive cases (Hannah H— and Mrs. M—) should be present, to afford in itself a good omen for some time to come.

The appearance of the blood vomited is very various.

Sometimes it is seen in *streaks* among the mixed matters ejected. See case of Helena F—, CASE CLI.

More commonly it comes in a *gush*, as in James P—, CASE CLIV; Selina Y—, CASE CLX; &c.

Sometimes it has remained long enough in the stomach to become *coagulated into large masses*, and then it is somewhat hard of ejection.

CASE CLXIV.—James M—, aged 32, a potman, was attacked at the beginning of April, 1860, with pain of a continuous character in the pit of the stomach. This continued getting worse till the 16th, when in the act of vomiting, to which he had become subject, he brought up about half a pint of blood, black in color. In the afternoon of the next day he brought up as much as three pints of thick, black blood in masses so tough as nearly to choke him. The tongue, however, remained clean and moist, and the pulse was only 74; the heart and lungs were healthy, and he had lost the pain in the epigastrium even when it was pressed. All which things considered, it

was not thought right to detain him above four days in hospital, especially as he wanted no medicine.

Sometimes the sanguineous effusion has remained long enough not only to be coagulated, but to be *partially digested, or rather cooked*, by the gastric acid; and then it assumes the reddish-brown color that it does in black puddings or German sausages from a similar partial cookery. It is more like that than coffee-grounds.

CASE CLXV.—Henry C—, aged 50, was admitted into St. George's Hospital in March, 1842, and died in about a month with an enormous cancerous mass in the liver; part of this had ulcerated the wall of the stomach by pressure, leaving some bloodvessels with open mouths, which must have continually been pouring out their contents. There was no cancer of the stomach itself. The vomit during life consisted of "coffee-grounds" (as technically called), with only an occasional admixture of red blood.

From this instance it is evident that "coffee ground" vomit is not exuded in the state in which it is seen (for here, of course, it must have exuded red), but has remained for a certain period, I cannot say how long, in the cavity. The brown stains found in the walls of mucous canals after death are in fact ecchymoses, which have probably existed a long time.

Sometimes the color is still more changed—it turns *green*.

CASE CLXVI.—John N—, aged 35, a painter, was admitted to St. Mary's Hospital April 10th, 1858. He had constant pain at the cardiac end of the stomach (increased by pressure), waterbrash, and frequent inability to keep down his food. On the 15th he vomited half a pint of grass-green matter, which was intensely acid to test-paper, complaining at the same time of pain between the shoulders and of acid rising in the mouth. On the 16th, before breakfast, he vomited some of the brown matter usually described as coffee-grounds, after which the acid rising in the throat was alleviated for a few days. On the 28th it was found that there was blood in the vomit; but he does not seem to have had any gushes of it. On May 8th he is reported as having vomited the green fluid and blood also. I have no further notes of the alterations in appearance of his vomiting; but it was relieved by leeches, and he was made an out-patient.

One cannot doubt that the various colors visible in the vomit were due to one and the same cause, namely, blood. The great acidity of the fluid forbade the idea that it consisted of bile, or even that there was bile enough to color it.

Another mode in which hemorrhage of the stomach mani-

feats itself, and by no means an uncommon mode, is by the stools being stained black or blackish-red.

CASE CLXVII.—Esther R—, aged 34, was admitted to St. Mary's October 14th, 1853. She had been in St. George's Hospital six years before her hæmatemesis, but what she complained of on admission was the passage of blood for the last two months by the bowels; and truly enough we found the stools sometimes with inky matter intimately mixed up with them, sometimes exhibiting clean masses of red blood. She was much weakened and blanched by the loss. Desirous of assigning this to its apparently most probable source, I treated the patient first with purgative enemata, and then with terebinthinate and astringent (iron alum) enemata, and gave her also decoction of Bael, which is said to act most on the lower bowel. Nothing stopped it till she took ℥xx of sulphuric acid with ℥ij of Battley's liquor sedativus three times a day. A few days after commencing this she had a natural fecal evacuation, and then improved rapidly under the use of quinine.

It is clear that the last-used course of treatment must have acted upon the stomach principally, for it certainly does not stop bleeding from the colon. And from the stomach came the hemorrhage on a former occasion; so that I presume it did so on this also.

Why had she bloody vomiting in one illness, and bloody stools only in the other? One may lawfully conjecture that the lesion which was the fountain of the hemorrhage had extended gradually nearer to the pyloric orifice, and was at last so near that the sphincter did not block the passage through—that is to say, it was in the pylorus itself.

This escape by the ordinary course of the alimentary canal is a very dangerous course for the hemorrhage to take; for instead of causing extraordinary, even unwarrantable alarm, as hæmatemesis does, it is liable to evade notice till the patient drains to death. It was nearly doing so in the case quoted. The same risk was run in the next case.

CASE CLXVIII.—Sarah G—, aged 33, a housemaid, always enjoyed good health till the middle of June, 1857, when she was laid up with sore throat at first. This passed into a wearing pain at the epigastrium, aggravated by food, and accompanied by several attacks of vomiting, during which she threw up blood. She became an out-patient at St. Mary's under Dr. Markham's care; and he, finding her weakness and paleness increased with alarming rapidity, and seeing the tongue dry and furred as in hemorrhagic fever, recommended her being admitted on August 22d. We then found, as Dr. Markham had suspected, but the patient constantly denied, that she passed

blood by the bowels whenever they were open. This required to be done by artificial means, for she was very costive. On one occasion the feces contained a clot of fibrin, washed colorless, as big as an egg. After observing and examining her for a few days, I gave her

R.—Plumbi Acetatis gr. ij.

Opil gr. $\frac{1}{4}$. In pilula ter die.

She took this for three days, and then her bowels were open of their own accord, and she passed a dark feculent solid stool containing no blood. The pills were therefore left off, and she was treated with occasional doses of castor oil to clear the bowels of the remedy.

But, for some reason or another, perhaps a relapse of the hemorrhage, I began the acetate of lead again on September 16th, giving it her only at night, however. On the 21st she passed a quantity of flocculent fibrin without blood. On the 23d a blue border was observed along the gums, so the lead was again left off, and she does not seem to have lost any more blood during her residence in the hospital, viz., till October 16th.

That is the worst of acetate of lead—you are so likely to have the chronic poisoning peculiar to the metal induced by it. It seems to occur in direct proportion to the length of time the salt is taken, and not to the dose. It is better on this score to give a very few large doses, even to run the risk of griping your patient, than many small ones. A couple of doses of ten grains each will likely enough be sufficient. I have so administered it in hæmoptysis with great satisfaction.

More usually the bloody vomiting and black stools occur at the same time, and then there is no difficulty in discovering the true cause of the latter. The following is the most familiar history.

CASE CLXIX.—Eliza F—, aged 35, was admitted August 21st, 1860, having for a fortnight suffered from vomiting of her food, tasting and smelling sour. That morning she had begun to consider her case serious, from having thrown up in addition some clotted blood to the extent of a few ounces. There was pain in the epigastrium, running through to the back, and increased by very slight pressure.

She was ordered a blue pill and castor oil, and then twenty minims each of sulphuric acid and oil of turpentine in a mixture three times a day; also ice milk, and cold beef-tea, like all other patients with hæmatemesis: but the next day the treatment was discontinued, as the vomiting had ceased.

There was no more blood thrown up till the 23d; the medicines were resumed, and it ceased. But all along she was passing black stools, as of digested blood.

Then her bowels became costive, and she took only some decoction of cinchona, and was discharged on September 7th.

To find the remains of blood in the stools is very satisfactory in hospital practice, in order to confirm the statements of the patients, which are not always to be trusted. They will talk about throwing up blood to excite attention, when in reality it is only simple vomiting.

Besides designed imposition, we have also to guard against the mistake of confounding blood coming from another source with that from the stomach. This is easy enough to run into. An example of the doubt has been given in CASE CLIX.

Waterbrash is sometimes found along with vomiting of blood. It is remarked in CASE CLX, Selina Y—, and also in CASE CLVIII, Sarah S—.

It was observed again in the following.

CASE CLXX.—Mary S—, a cook, aged 23, was admitted to St. Mary's July 27th, 1853. She stated that her health had always been excellent till six months previously, when she began to experience pain in the chest, and frequently to vomit after her meals. She brought up her food mixed with a yellow (? sanguineous) fluid. She was under medical treatment and got cured. But six weeks before admission the pain returned. Frequently instead of vomiting she used to eject a quantity of clear watery fluid (water-brash). But what brought her to the hospital as an in-patient, was her having three times lately thrown up blood by vomiting. Previous to the hæmatemesis there had been felt darting pains in the epigastrium. Rest for ten days in the hospital, and half-a-dozen leeches to the epigastrium, put a stop to all her symptoms, and at her own desire she returned to her situation; so there was evidently no shame in the case.

I suspect in these cases, where waterbrash is joined to bloody vomiting, that the lesion which occasions the latter is near the cardiac orifice. You do not have here the pains in the right shoulder which point to pyloric lesions.

I have spoken without hesitation of hæmatemesis as arising from some lesion of the mucous membrane, by which a more or less number of larger or smaller bloodvessels have been broken. The precise mode in which the rupture is effected is not easy to ascertain. But it does not require any very great violence. A blow on the epigastrium not hard enough to bruise the outside skin may, for example, cause it; as in the following.

CASE CLXXI.—Susan L—, aged 45, the dissipated drunken wife of a laboring man, had a fight with her husband, and got her eye blacked, her back kicked, and a punch on the belly. The two former were bruised, but not the latter. She was brought to the hospital April 3d, 1856, because on going out into the Edgeware Road the day after the fight she felt very faint, and threw up a good deal of blood. It was at first considered to have come from the thoracic viscera, seeing that she had no bruises or pain on pressure in the abdomen. But examination with test-paper, and what she had thrown up on her clothes, showed it to be acid, and to have come from the stomach therefore. The pulse was hardly to be felt; she was delirious, the skin clammy, and the feet cold; so that we had to rouse up her ebbing life with hot water and mustard.

She had also m.xx of oil of turpentine every hour; but as at night she still continued vomiting blood, a slab of ice was laid on the epigastrium, and alum and tannic acid administered by the mouth.

Next day the bleeding had ceased, the pulse became more perceptible, and the mind clear.

There was no return of the symptoms, but I kept her in till the 21st for safety.

In the last history it was mentioned that there being no pain in the epigastrium made the diagnosis doubtful at first blush, though the injury was proved so indubitably to be in the stomach by after events and observations. In the case of Selina Y— (CASE CLX) there was also no pain in the epigastrium. Perhaps a clue to the condition existing under such circumstances may be afforded by the following.

CASE CLXXII.—Elizabeth A—, a cook, aged 35, but unmarried, was admitted under me June 10th, 1861. She had the appearance of good health, and said she had always enjoyed it till five days previously, when she felt so nauseated and giddy that she thought a bilious attack must be impending. A disagreeable rising in the throat lasted all day, and at 10 P. M. she vomited violently and threw up blood. There was perhaps also bile mixed with it, as she said it tasted bitter. This was on a Wednesday, and on the Friday she again vomited blood and passed black motions, and on the Monday came to St. Mary's. In the mean time she had been taking pills bought at a small chemist's shop, and therefore probably containing mercury, the usual panacea in low counter practice. At all events, she was salivated on admission.

In this case there was no pain in the epigastrium without or with pressure. The liver on admission was found much enlarged laterally and vertically, yet neither was it painful on pressure. She had no medicine.

On the 12th the liver was much smaller. The black color had disappeared from the motions, and she had no more vomiting of blood, and went out on the 28th.

I suppose the cause of hæmatemesis here was congestion of the liver—a condition which is said often to occur in practice, though I confess I can seldom make it out by percussion.

From the above cases I would conclude that the vomiting of blood denotes, if not perhaps an open bloodvessel, yet such a lesed pathological state of the mucous membrane as requires a completely alterative renewal, and that such alterative renewal is best brought about by general analeptic remedies, by the local removal of congestion, and by the restoration of capillary circulation through local depletion. I should infer also that the quickest arresters of the immediate hemorrhage are turpentine and acetate of lead internally, and ice externally.

SECTION V.

Acid fermentation of vomit.

The contents of a healthy stomach ejected by any accidental cause have a certain amount of acid reaction from the presence of the acid gastric juice, and indeed this is necessary to their solution. And a degree of sourness in the viands consumed seems to favor their digestion. So that acidity in itself is not a morbid phenomenon in vomit.

Let it be understood, then, that I do not refer in this section to the ordinary normal acidity of the gastric contents, but to the fermentation, principally into acetic acid, of the whole mass, to a decomposition of undigesting food.

For truly in some cases of vomiting the excessive acidity of the mass is a very marked feature. The throat is burned by it, the teeth roughened and the eyes made to smart, just as by taking into the mouth a strong solution of acetic acid. And the sour smell of an acid volatile at a low temperature is diffused through the air. In fact, the whole mass of the ejecta has become acid, instead of merely having acid mixed with it.

The cause is the retention in the stomach of the remains of the meal so long that they have had leisure to ferment throughout, instead of being digested as they became soured by the gastric juice. The cause of the retention most generally is the

coating of the lining membrane with adhesive mucus, which impedes the peristaltic movements and prevents the gastric solvents from penetrating the mass. The acidity does not cause indigestion, but the indigestion causes the acidity.

Besides retaining the mass so long that any internal decomposition to which it may be from its nature apt is aided by time, the mucus also in itself is an encouragement to chemical action. A familiar instance of this is the rapid decay of the urine in a catarrhal bladder. The mucus is probably itself in a state of chemical change which is thus propagated to the mass.

The decomposition of the mucus is shown by the frequency with which different sorts of low parasitic growths, or moulds, are developed in it. The well-defined species *Sarcina Ventriculi* is the most distinctly marked of these, which, though detected occasionally elsewhere, certainly finds its most congenial home in the stomach. In other places it has been found in completely dead matter (as by Virchow in gangrenous lung) or else a floating wanderer in excreted fluids,¹ but on the lining membrane of the stomach it may be seen fixed and growing in the mucus. It is not often that an opportunity occurs of proving to the eye that such is the habitat of the *Sarcina*—we frequently find it vomited, but the patients seldom die during their illness, the complaint not being a fatal one. One indeed has offered itself to me in CASE CXXVI, a girl of fourteen, who died in St. Mary's Hospital of enlarged heart.² She had frequent attacks of sour, but not frothy vomiting, before death, and at the autopsy we found the great curvature of the stomach thickly clothed with a stringy mucus, very difficult to detach, in the outer layer of which a considerable quantity of *Sarcinæ* were imbedded.

It is pretty clear from this that the mucus, and not the stomach's contents, is the root-soil of the *Sarcina*.

Being fixed then in a permanent home, and rapidly replacing with new growths those which are wiped away by the food, the *Sarcina* is probably not inert. A great number, perhaps all, of those cryptogamous plants whose nature is to grow upon decomposing organic matter, have the property of promoting decom-

¹ Parkes, "On the Urine," p. 213.

² See page 157.

position, so that they are not only consequences, but causes also of decay. It is found, for example, that the gutta-percha covering to electric-telegraph wires, when laid down near the roots of oaks, becomes rapidly rotten from the presence of a fungus peculiar to that tree. Put your jam in a new cupboard, and it will keep much longer than in one where mould has previously grown. Saving housewives used formerly to keep what they called a "vinegar plant;" it is a simple-celled cryptogam found in old casks. If placed in sugar and water, it makes the whole undergo the acetous fermentation in two or three weeks, instead of the process occupying several months. The mould found in yeast (the *Torula Cerevisiæ*) though not essential to alcoholic fermentation, certainly augments the rapidity of its induction; so that it is entirely in accordance with known physical laws if the presence of sarcinæ, or of the yeast-plant, on the mucus of the stomach should bring on fermentation in the food before the obstructed absorbents have time to take it up. Both have been found in the contents of the stomach ejected; and it is shown by the case I quoted, that sarcinæ at least may exist adherent to the mucus without being thrown up, at least in quantities sufficient to be discovered. Probably oftener than we fancy these moulds are unseen promoters of the rapid fermentation which takes place so mysteriously in the stomach of invalids.

The chief factors in this fermentation then I take to be mucus adherent to the walls of the stomach. With this mucus there gets intimately mixed up some dead animal matter which decomposes and moulds and so encourages the fermentation. The dead animal matter often is blood exuding from the gastric parietes; for the mucus is so tough that the food taken into the stomach has much difficulty in blending with it.

The following cases are typically illustrative.

CASE CLXXIII.—Cornelius K—, a laborer, was admitted to St. Mary's June 27th, 1856. For the last ten years he had been in the habit of occasionally vomiting blood, on the average about three times a year. Of late he had vomited more frequently, but there was not always blood in what he threw up. Sometimes the vomit was very fluid and sour, sometimes it contained yellow matter, and when blood was thrown up it was dark and clotted. He had constant pain in the epigastrium, but that was much aggravated by pressure, and also before and after the ejection. His most usual time for vomiting was about four in the morning; if it recurred again in the twenty-four hours, it

was usually in the evening. He was much emaciated by his illness. The tongue was very clean.

After admission the vomiting was found to occur with regular periodicity morning and evening. The matter thrown up was copious, brown, and frothy. It diffused a strong smell of acetic acid. Often, when left to stand, it went on bubbling and frothing, so as to flow over the edge of a small vessel. Once only were *Sarcinæ* detected in it.

He was treated for a week with a drachm of hyposulphite of soda three times a day, but it did not seem to check the symptoms at all. He then had eight grains of quinine with twenty drops of laudanum every night, and for nearly a fortnight he did not throw up. However the trouble then returned, though not so periodically. He complained of loss of appetite and pain after swallowing fluids. He then had ten drops of oil of turpentine three times a day without benefit, and with some increase of pain at the epigastrium. Then he had six leeches on the epigastrium. After this the vomit, though intensely acid, seems to have contained no more of the brown frothy matter. He left the hospital August 4th, having gained so much flesh that he thought himself able to work.

CASE CLXXIV.—Eliza T—, aged 35, a married woman, was admitted to St. Mary's January 14th, 1853. She had a child nine weeks old, and during her pregnancy she related that she had suffered much from sickness. She also frequently had a pain come between the shoulders, which extended round to the abdomen, and lasted about four hours. Since her lying-in the sickness had continued, and on admission she had pain at the epigastrium on pressure.

After admission we found that she had constant uneasiness following her meals, and that she was never at ease till either the food returned spontaneously, or she ejected it by exciting vomiting. On examination of the matters vomited spontaneously, they were found frothy, and containing a considerable quantity of *Sarcina ventriculi* in each specimen.

She was treated at first with leeches to the pit of the stomach and hydrocyanic acid internally. She got better at first, but then relapsed; when she was put upon two drachms of hyposulphite of soda thrice a day. She had no more vomiting at all after this, and went out in eleven days in good health.

CASE CLXXV.—Alfred F—, aged 25, died August 9th, 1859. At the post-mortem examination there was found an ulcer the size of a crown piece in the duodenum, about an inch below the mouth of the gall-duct. The ulcer had penetrated the coats, but the gut was at this point adherent to the pancreas, which had prevented perforation. All the intestines were filled with partially digested blood, and this hemorrhage seemed to have been the cause of death, for the lungs and liver were completely blanched with bloodlessness. He had died fainting from loss of blood by the bowels.

This man had previous to death been my patient at St. Mary's, with jaundice and vomiting of brown, sour, fermenting matter, in which, however, no *Sarcinæ* were found. The tongue had been throughout his illness remarkably clean.

CASE CLXXVI.—Edmund L—, Esq., aged 27, December 19th, 1861. For the last six months has been in the habit of throwing up an hour after many of his meals, especially dinner, a quantity of sour-scented matter, “frothing like yeast,” according to his description. He has no constant pain at the epigastrium, and very little on pressure. His previous illnesses have been an attack similar to this seven years ago, and a sharp pain, like pleurisy, last year.

I prescribed for him—

R.—Sodæ Hyposulphitis, ℥j.
Acidi Hydrocyanici diluti, ʒv.
Mistura Camphoræ f℥j. Ter die.

Dietary.

For dinner.—A mutton-chop; stale bread; water.

For other meals.—Milk, with one-quarter of its bulk of lime-water; stale bread or captain's biscuit.

He vomited just after leaving my room, but only once again after commencing the use of the medicine. After a week he was troubled with some intestinal flatulence, which was entirely obviated by fifteen grains of charcoal every night and some pepsine at dinner. He had also some strychnine as a general remedy for his indigestion.

SECTION VI.

Fæcal vomiting.

To quote instances and discuss this subject in detail would be to travel out of the province of “The Indigestions” too far; yet a formal notice of it can scarcely be omitted from an enumeration of the morbid matters ejected in vomiting.

Feces, or more strictly speaking matters having a feculent smell, are found in vomit only where a mechanical impediment has completely arrested the onward movement of the peristaltic wave in a lower part of the intestinal canal. It lasts as long as the impediment lasts, and ceases with its ceasing. The cure lies solely in the direct removal of the cause.

Fæcal vomiting is popularly ascribed to a reversal of the peristaltic motion; but I do not think it desirable to resort to such a strained explanation. When we reflect that about twelve quarts of secretion, bile and intestinal juices together, not counting food, are daily poured into the intestines,¹ it is

¹ Bidder and Schmidt.

easy to see that the onward wave and absorption have only to be arrested for the ilia to be overfilled, and for their contents to overflow upwards into the stomach. There they naturally produce vomiting, just as they would if swallowed. No reversal is necessary.

Now such an arrest takes place most notably and obviously in strangulated hernia, in which without any inflammatory action having arisen we have vomiting, which does not endure long without becoming feculent. And a like paralysis falls upon the muscles and absorbents of the bowels in peritonitis, also inducing vomiting.

It is true that this vomiting in either case, though it tends to become feculent, does not always arrive at the point of being so. There may be too little feces already prepared in the canal to odorize the great mass of liquid; or the arrest of movement may take place too high in the ilia; or it may be just complete enough to fill the ilia while yet some feces drain off at the lower end. These circumstances do not alter the essential nature of the act.

I think the smell is derived from the contents of the lower ilia. I doubt much if liquids can overcome the ilio-cæcal valve, even when paralytic. It is a valve, not a sphincter, and offers a resistance even in the dead body.

SECTION VII.

Vomiting of unchanged food, and hysterical vomiting.

By far the most common cases of vomiting are those in which the ejecta consist of food scarcely if at all changed from the state in which it is swallowed. Sometimes it is moderately acid from the admixture of a small quantity of gastric juice; sometimes it is neutral.

It is not my intention here to discuss accidental or occasional vomiting from external causes, which may be considered rather the business of the physiologist, but such as having a deleterious influence on the general health comes under the care of the physician.

This sort of vomiting happens soon after food has been taken, and is always preceded by a feeling of discomfort at the epigas-

trium, often by nausea; indeed, it seems often to be a sort of semi-voluntary movement to relieve that discomfort.

I do not know but what in all vomiting there is something of an exertion of the volition; but in some cases this is a much more marked feature, and the voluntary character may be made use of in the treatment. It is an important point to observe, and I shall therefore cite first some typical examples of its being under the control of the will.

CASE CLXXVII.—Miss Ellen B—, aged 14 or 15, was under my care in the spring of 1863 for general ill health and emaciation. There were some glandular swellings in the abdomen and groin, but hardly enough to account for her extreme degree of emaciation, dry skin, and depression of spirits. On further inquiry it appeared that for four years she had experienced discomfort around the waist after eating, and had been in the habit of going away secretly soon after meals and vomiting up what she had taken. She said she could not help it, but yet it appeared that when circumstances prevented her retirement, she was able to restrain herself for a time. Acting on this hint, I desired her parents to exert their authority and forbid the ejection of food. I gave her (with the iodine ordered for the glandular swellings) some cod-liver oil, and sent her to be amused at the sea-side. In a fortnight I heard from her father that she had become convinced of the importance of keeping off vomiting, but that still from habit the food would rise, on which she swallowed it again, according to her own very appropriate phrase "chewing the cud." The best evidence he could give of the success of treatment was, that she had gained in weight four pounds the first week and four pounds the second. This girl, though neither hysterical nor insane, was yet very original in her notions, and had apparently out of her own head devised the vomiting as a relief to epigastric discomfort.

The vomiting may at first have been wholly intentional, but latterly it seemingly assumed a more involuntary and reflex character, as shown by the rising of the contents of the stomach into the fauces in spite of the efforts of the patient to keep them down.

In the following case the vomiting was at first involuntary, and then when the patient got better and was really able to prevent it she designedly induced it as a relief to her discomfort.

CASE CLXXVIII.—Emily G—, aged 20, maid-servant, was admitted into St. Mary's September 24th, 1858. She was reported subject to hysteric fits, for which she had already been an in-patient in 1857. She was very pale and leuco-phlegmatic, and the catamenia were irregular. She had an hysteric fit

on the 25th. On the 28th she complained much of headache, and began vomiting after all food. The next morning the catamenia appeared. The vomiting continued very obstinate, in spite of valerian in decoction and tincture, and bromide of potassium. Shower-baths at last stopped it, and then she designedly brought it back by putting her fingers down her throat.

In the last case the catamenial period seemed to bring on the gastric symptoms. In the next it relieved them.

CASE CLXXIX.—Mary H—, aged 16, was admitted into St. Mary's December 16th, 1853. She was complaining of flatulence in the bowels, eructations, and vomiting of food. She had been wearing a large wooden busk to her stays. The catamenia had been regular since the age of fourteen, except the last period, which was overdue ten days. She continued vomiting everything she tried to swallow all that day, the next, and the next after that. On the 20th she vomited part of her breakfast, and then the catamenia appeared, and she vomited no more, though kept in a few days to see if the symptoms returned.

The frequent connection of vomiting in the female sex with that same state of constitution which induces hysteria and also irregularity of the catamenial periods, leads one to employ Valerian even when the menses are regular; and it is often successful.

CASE CLXXX.—Mary Ann T—, aged 18, was admitted to St. Mary's December 3d, 1855, for an attack of continuous vomiting of all food, which had lasted six weeks. She said she had been subject to attacks of this sort since her childhood; but they had not prevented her arriving at puberty at fourteen, and menstruating regularly ever since, having a good appetite and growing up a plump cherry-cheeked girl. She was given simple diet with milk and lime-water, with a mixture of rhubarb and gallic acid three times a day.

The sickness continued as bad as ever on the 5th, the bread and the milk taken being rejected exactly as swallowed. Then she was ordered

R.—*Infusi Valerianæ* flʒj.

Tincturæ Valerianæ co. flʒj.—*Ter die.*

An immediate good effect followed. She did not eject the medicine, and the next day she was able to retain the milk. She had a little relapse of sickness on the 10th, but after that continued well, and left on the 20th.

Functional vomiting is sometimes so bad that no remedies can be kept on the stomach, and then a very good expedient is to give that organ a complete rest.

CASE CLXXXI.—Esther D—, a stout young woman of 21, was admitted to St. Mary's August 23d, 1859. She had been ailing for a fortnight with headache and general malaise, and pain in the left hypochondrium. On the 21st she had an hysterical fit, and afterwards commenced vomiting very violently. She had great pain across the pit of the stomach, and the vomiting and this pain were immediately induced by an attempt to swallow.

She lay on her back, with the knees drawn up like a person with peritonitis. But, very unlike a person with peritonitis, the abdominal muscles were very violently exerted in breathing. Her skin was hot and dry, her pulse 120, her tongue coated with a yellowish fur. Altogether, she was extremely ill, but a good deal of her febrile state seemed due to her being partially under the influence of mercury, which had been assiduously given up to her admission. The gums were ulcerated, and blood oozed from some part of the fauces staining the vomit with streaks of blood.

Ten leeches were put on the epigastrium, but they did not seem to relieve the pain.

She was ordered to have no food or medicine by the mouth, but half a pint of beef-tea in an enema, with five drops of laudanum every three hours.

She was fed in this way for ten days, when some warm beef-tea was given her; that she threw up, but was able to retain it when quite cold. After this she was able to retain her food for a week or so. But then the vomiting returned, though not so bad as before. She was treated with valerian, with strychnine, and with blisters; but the success of each remedy was very temporary. On October 10th, a cold shower-bath was ordered to be taken every morning, and an immediate stop was to put to her vomiting. The symptom did not occur at all again, though she was kept in till the 28th to be watched and to have the baths.

Entire rest given to the stomach for a few days will put a stop, final or not I cannot say, to vomiting of a much more chronic character, and even where the souring of the mass seems to point to something more than the functional nervous paralysis which has caused it in the hysterical cases already quoted.

CASE CLXXXII.—Charlotte S—, aged 28, a dusky, tough-looking spinster, was admitted to St. Mary's, March 26th, 1860. Eighteen months previously she had caught cold, and after three days, was taken with vomiting very soon after eating. The matters vomited are the food she has been taking, often accompanied by a considerable quantity of fluid tasting sour. This has made her weak and diminished the catamenia, which are scanty, though regular, and accompanied by a good deal of pain. The last six weeks she had got worse, and could keep no food on her stomach at all.

On admission her pulse was 96, full and strong enough, the tongue was furred, the bowels were costive, the urine was slightly alkaline, not albuminous.

For two days she remained in hospital, vomiting all her food, but taking no medicine; for, either by accident or intention, I had written no prescription. On the 28th she was ordered to have no food by the mouth at all, but half-a-pint of beef-tea with five drops of laudanum as an enema every three hours. She retched no more.

On the 31st some milk and lime-water, in small quantities at a time, was given her to drink, and she kept it down. Still, however, the enema was trusted to as the chief nutriment.

On April 4th she tried a mutton-chop, and succeeded in retaining it. On the 13th she left well.

It was observed that when she took to meat again the urine was acid, deposited urates, and contained a little albumen.

In the following case the habit was still more ingrained by time, and also the color of the vomit induced a suspicion that there was hemorrhage of the mucous canal in some part, either œsophagus or stomach, yet it was cured by a temporary rest.

CASE CLXXXIII.—Mrs. S—, a small, swarthy, bright-eyed woman of 22, came under my care March 9th, 1861, for constant vomiting of three years' duration, which she attributed to having caught cold during a monthly period, and having her courses checked for several months at nineteen years of age, when a virgin. Her food was always returned by the mouth within ten minutes after swallowing, and was unchanged in appearance. Besides this, she also vomited at other times, when the stomach was empty, if her mind was excited. Indeed she did so in my own room, ejecting some reddish-brown granular and flocculent matter, which looked exceedingly like semi-digested blood.

She was not much emaciated; her catamenia had returned; she had married six months before I saw her, and had a miscarriage at an early term of foetal life—four months after marriage. All which proofs of vigor seemed to show that a good deal of nourishment must escape the rejection by vomiting. She said she felt constantly hungry, and was evidently of an hysterical temperament.

I advised that she should be kept entirely without food and nourished by enemata of beef-tea and laudanum for a week, whilst at the same time the stomach was further quieted by the application of a few leeches to the epigastrium and some bismuth.

On the 17th I heard from Dr. Woodhouse, of Hertford, who had undertaken to watch the case, that they had not arrived at continuing the treatment a full week, but that for two days the patient had taken food and kept it down. He reported well again on the 18th. But on the 20th he said the sickness had returned, with great pain in the right groin. It was again stopped by a recurrence to the treatment for a week. The whole number of days' rest was thirteen or fourteen. On the 28th Mrs. S— was able to take four small meals a day, and began iron and quinine, which, on April 29th, she

was going on with, having had no return of her sickness. In the spring of 1866 I heard from her sister that she had continued well ever since.

In a former case (Esther D—, CASE CLXXXI, page 201), the agency of complete rest to the stomach and of shower-baths may have been compared. The first seems more calculated to work a powerful and immediate effect, but that of the latter was more permanent. In the next case I trusted to shower-baths at once, and with apparent success.

CASE CLXXXIV.—Miss Frances C—, aged 21, a sister of the last patient, is a very plump girl, with a pink-and-white doll's complexion; but when she came to me, on the 4th of April last, she and her mother positively affirmed that she hardly ever, for five years, passed a meal without vomiting. She seemed a calm sensible person, impressionable perhaps, but not hysterical. She says that by a violent effort she can keep things down; but that effort produces violent pain at the upper part of the sternum. The vomiting had been worse and her efforts to restrain it more ineffectual since a violent purgative course which had been administered by an oculist to reduce an inflammation of the tarsi. Since then, also, her bowels had been very costive.

I ordered her a cold shower-bath at twelve o'clock every day, and the following draught:—

R.—Acidi Hydrocyanici dil. $\mathfrak{m}\mathfrak{i}\mathfrak{v}$.
Tinct. Valerianæ comp. $\mathfrak{f}\mathfrak{3}\mathfrak{j}$.
Infusi Valerianæ $\mathfrak{f}\mathfrak{3}\mathfrak{j}$.

Bis die semi-horam ante cibum.

On the 12th this medicine was changed for four drops of the Prussic acid before meals, and

R.—Zinci Valerianatis gr. $\mathfrak{i}\mathfrak{j}$.
Opii gr. $\frac{1}{2}$.
Omni nocte et mané.

On the 28th she called to show herself as quite well; but she purposed to continue the shower-baths every morning as a substitute for the British tubing.

The hereditary nature of the constitution tending to this disease is shown by the two sisters being afflicted in a similar way. Seeing their mother one day I took the opportunity of cross-examining her, and found that though she had never been subject to vomiting, yet she used to have regular hysterical fits when a maiden.

Strong mental impressions sometimes have a singular effect both in bringing on and stopping chronic vomiting of this sort.

An upsetting shock will induce a relapse, a calmative control, or the idea thereof, will arrest it.

CASE CLXXXV.—Miss Hannah M—, aged 19, was sent to me by Mr. Ayers, of Ramsgate, in January, 1858. After a preface of hysteria, she had suffered daily from rejection of food for six months, sometimes throwing up everything eaten, but always unchanged in appearance. She had also frequently difficulty in swallowing, so immediate was the rising of the gorge at food.

I gave her some valerian, and the patient was soon well. She went home to Ramsgate; and, being soon afterwards frightened by a chimney catching fire, was attacked by vomiting again.

She returned to London and sent for me. Immediately on my visit—with-out any remedy—the vomiting ceased, and she swallowed everything easily. It was the "*veni, vidi, vici*" cure I ever saw.

The cure here was purely moral. And of shower-baths, too, I think we may class a great part of the strength among psychical agents. To take a cold shower-bath demands a certain control over the will, even when you are driven into it by a stern nurse, and the bracing up the mind to the resistance to the instinctive shrinking against the shock is the best possible lesson which the physician is at liberty to prescribe. Strength of will is gained by willing.

I have already said that I looked upon the temporary paralysis of the œsophagus as the most essential pathological condition in vomiting. A confirmatory evidence of this is found in some cases where temporary paralysis of other parts is exhibited along with the vomiting. I extract the following case out of my clinical lectures for 1863:—

CASE CLXXXVI.—I will call your attention to-day to a case of vomiting, namely, that of Hannah P—, aged 18. She is a respectable farmer's daughter, and seems to have been much petted at home. She has large black pupils to the eyes, and puffy eyelids, and allows that before her present illness she used to have hysterical fits, but not since she has suffered from what she came here for, namely, chronic vomiting. I should rather call it a rejection of food, for it occurs even while food is being taken, almost always before it is swallowed. This happens at every meal, and has lasted a year and a-half, and during that time she has been for a short time in her country hospital with relief but not cure. She has also pains in the back and in the splenic region. She declared she was unable to walk or even to stand without assistance, and when placed upright in the middle of the room she fell down at first. Nevertheless, after a scolding and a decided command to exert her will vigorously, she at

last began to put one leg before the other, and progressed a few steps even on the first day. The catamenia had been absent three months, and indeed had never been established at regular periods.

This girl, after retaining mutton-chops and porter for a fortnight, and exhibiting her muscular powers by a walk to Oxford Street and back, went home well July 13th. While in hospital (convalescent) she was employed about the wards; and being thus brought in contact with a young woman recovering from rheumatic fever, she infected her also with a desire to vomit; which, however, was checked in the bud. And I afterwards heard, from one of my pupils, that she next winter not only relapsed into her former condition, but again communicated it to a neighbor of her own age.

There is a peculiarity about hysterical paralysis which in a great many cases guides to its nature—and guiding to its nature is here more than anywhere a most important step in the cure. When you set the patient up on the floor, assisting her with one or two hands, or with your hands under the axillæ, according to the degree of paralysis and the amount of aid wanted, the body is immediately thrown forwards, and all your strength is called for to prevent her falling on the face. Other paralytics fall to one side or the other, or backwards, and do not stumble forwards in this way. The peculiarity was well marked in the above instance, and aided the diagnosis.

So also in the vomiting which is associated with it in its nature there is a peculiarity which is a diagnostic guide. It can generally be controlled by a violent effort of the volition.

And thus to exert the volition is a help not only to the diagnosis, but to the cure, as has been shown by several instances of a typical sort.

Mention was made in a parenthetical addition to the history of this last case of the communicability of this kind of complaint. It is an instance of the mysterious power of sympathy which influences so much of our outward life from the cradle to the grave. In this instinct of imitation there are indeed degrees, but no essential differences between that which helps the infants to acquire the power of speech and that morbid condition in which the mind and body are slavishly enchained to reflect the acts engendered by the feelings of another. It is innate in all, but is weak or strong in proportion as the mind is capable of going alone, or is necessarily in the habit of depending on others. This is the reason why it prevails so much among the female

sex. I have had so many instances of hysteria, chorea, and allied diseases whose pathology lies between mind and matter, being caught by lookers-on, that I cannot hesitate to call their transmission an infection by the eye.

Care must be taken to distinguish from this class of cases those in which from some mechanical impediment or lesion the food cannot be swallowed, such as that cited in illustration of another part of the subject at page 177, CASE CXLIV; or the following, where the result being happier, more doubts might have been expressed as to the diagnosis.

CASE CLXXXVII.—A respectable cabman's wife, Ann A—, aged 32, was admitted to St. Mary's July 22d, 1853. She was exceedingly emaciated, weak, and anæmic, and had a loud murmur, probably from anæmia, with the first sound of the heart. For a month she had been obliged to reject her victuals after chewing them, from inability to pass them further than the back of the throat. They seemed to stick at the level of the os hyoides. From this point a pain ran to the back of the neck, between the shoulders. Quite at the posterior part of the fauces the mucous membrane looked redder than elsewhere, and got redder as it got lower.

She was ordered rations of beef-tea and milk, and the following electuary:—

R.—Bismuthi Trisnitratis ʒj.

Sacchari fæcis ʒiss.

Fiat electuarium quotidianum, cujus lambat panxillum subinde.

When able to swallow better, she had some bark and a blister on the throat. She lost the pain, was able to swallow, and left much relieved on August 7th.

It will be seen that here the food is not swallowed at all, and there is no emetic effort. It is simply rejected.

I am glad of the opportunity in citing this case of again recording the good effects of bismuth, alluded to under CASE CXLIV.

To sum up, I would deduce from the very common class of cases of which I have cited typical examples:—

1st. That the chronic vomiting of matters swallowed unchanged immediately after swallowing is almost peculiar to women.

2d. That it is allied to hysteria.

3d. That, like hysteria, it is now more a mental, now more a bodily affection; now more under the patient's control, now less.

4th. That the efficient employment of drugs being in a manner barred by their rapid ejection, other means are more imperatively called for in this disease than in most others.

5th. That the weakening of the patient's will being the marked feature of this morbid constitution, the strengthening of the will is the best antidote.

6th. Rational persuasion is available in some few, extremely voluntary, cases.

7th. The most powerful remedy is the cold shower-bath, for the reasons given above.

8th. When physic can be retained, the most efficient is valerian.

9th. A forcible change of habit by resting the stomach, and giving it nothing to bring up, is a valuable aid; but it is doubtful how far it would answer without other remedies.

SECTION VIII.

Vomiting in pulmonary consumption.

CASE CLXXXVIII.—Cyrus K—, aged 22, came to me in July, 1855, complaining of languor, sleepiness of an afternoon, weight at the epigastrium an hour or two after meals, and occasional vomiting in the morning. He had had a good deal of hard work latterly, and attributed his indigestion to that. But his mentioning a cough induced me to examine his chest, where I found marked deficiency of respiration and dulness in the apex of the left lung, and crackling in the lower lobe of the same side. He was also a good deal emaciated, and he owned to having spat blood before he was ill. I thought there was tubercle just beginning to soften; gave him for a time lime-water and milk, cod-liver oil and steel wine after meals. And then I urged him to go to the West Indies, where he had connections, for the winter.

In October, 1861, he came again, telling me that he had gone to Bermuda and stayed, not only for the winter, but ever since. In 1858 he had spitting of blood, and he had yellow fever in 1859, but had grown fat in spite of them; and he had continued well till he was now come to England, where, after a few months' holiday, he found his old dyspepsia returning, and wisely resolved to go back to his more appropriate home. There was crackling in the apex previously dull, but I do not think the lungs had got materially worse.

This is the slightest degree of stomach derangement, for it did not even prevent the taking of cod-liver oil.

CASE CLXXXIX.—An unmarried lady of 32, was sent up to consult me by Mr. Gardner, of Painswick, May 22d, 1863. She had been ill since the previous October with vomiting after meals. The food returned at short intervals in mouthfuls in an undigested state. The matters rejected were almost always free from acidity. Sometimes this would begin in the morning and continue all day, sometimes would not come on until the evening.

She had a slight feeling of weight or oppression at the epigastrium, but there was no distension or tenderness.

Her general health had not suffered much, the menses remaining regular, and at these periods she thought she was better. Though she had some cough, it was not a marked feature in the case.

On examining the chest, I found evidence of crude latent tubercle in the lungs. There was deficient respiration in the right apex, and a bronchial interrupted expiration in the left.

The degree of dyspepsia and the degree of tuberculosis are not proportioned to one another. There was in this case much more vomiting and less tubercle, or less advanced tubercle, than in the last. Perhaps it was because of the patient's sex.

CASE CXC.—William J—, aged 21, was admitted to St. Mary's August 21st, 1857, for pulmonary consumption of two years' duration. (The upper part of the chest was much flattened, and the shoulders drawn forwards; there was bronchophony and bronchial breathing, and various creaking râles in the apices of both lungs, most in the right). He suffered from several dyspeptic symptoms, and among them from vomiting. He stated, however, that this latter only occurred if he attempted to move about and take bodily exercise after meals.

He was able to keep down cod-liver oil if he remained quite quiet afterwards; and upon that and iron after meals, he gained two pounds in weight between August 28th and September 5th. He was then treated for a week with hypophosphite of lime (eight grains three times a day), but gained only one pound in that time. His sickness never troubled him as long as he kept quiet and rested in the hospital.

The sickness only on exertion looked as if it depended on general weakness, rather than on any morbid condition of the stomach.

I introduced the last clause in the history, not as especially bearing on consumptive vomiting, but to take an opportunity of saying that I have not found hyposulphite of lime such a good renewer of life as cod-liver oil. Some consumptive patients did not gain any weight at all under its use, in spite of the improved diet of the hospital.

The next two cases exhibit the coming on of vomiting in consumption coincident with the first hæmoptysis.

CASE CXCI.—Emma K—, aged 25, was sent from a penitentiary to St. Mary's Hospital on account of her failing health, July 22d, 1853. She described herself as having been weakly for a couple of years, but had no marked symptoms till a fortnight before, when she began coughing up blood. At the same time she commenced vomiting, and continued to throw up everything she took. She was rapidly losing flesh.

On stethoscopic examination the apex of the right lung was found dull and very painful when pressed.

Gallic acid (for the hæmoptysis), hydrocyanic acid, morphia, quinine, were severally given, without any advantage to the sickness. Chloroform in eight-minim doses was of temporary use, but the most effectual remedy was opium in grain doses. Under this her sickness ceased, and she immediately began to gain flesh and strength, and left the hospital in fair condition August 26th.

With the vomit there was at first a good deal of light green fluid, probably blood swallowed and digested.

CASE CXCIL.—Bridget S—, a domestic servant, was admitted to St. Mary's January 26th, 1857, with pulmonary consumption of eighteen months' duration. It had begun with hæmoptysis and vomiting. The vomit usually was merely the contents of the stomach, but sometimes she brought up clots of blood at the same time.

The good effects of opium in checking the vomiting of consumptives was alluded to in CASE CXCI; the following illustrates it still more strongly.

CASE CXCIIL.—B.'s Anonyma, aged about five-and-twenty, was placed under my care March, 1861. She had a large vomica in the upper lobe of the left lung, and the greater part of the lower lobe impervious with tubercles; but she had suffered very little from pulmonary symptoms, would not hear of her being in a consumption, and talked about going to dances in a low dress as soon as she could get about again. But she was utterly prostrated to her bed by the constant vomiting of all she ate, and retching when she ate nothing. The bowels were obstinately costive, and she had taken as much as twelve grains of extract of colocynth without effect.

I gave her opium, beginning with a grain, and augmenting it to six grains daily. Then the vomiting ceased, and she recovered her appetite and fondness for luxurious living. She ate twelve shillings' worth of strawberries (in April) daily, and an immeasurable quantity of brown bread ice. Her bowels recovered their functions, and she passed naturally colored and formed stools in spite of the opium. She slept naturally and easily without excess or stupor.

She died in the summer, but was able to keep off her vomiting to the last with the help of the opium. I think, however, she increased the dose. So that her ending was made much more easy, and probably postponed by it.

A different form of phthisical vomiting, sadly common, is that which occurs in an advanced stage of large vomicae, from the nauseousness of the sputa. It is very distressing to the patient; and almost equally so to the physician, for his remedies afford little or no relief.

This vomiting is more frequently found when the vomica occupies the lower or middle parts of the lung than when it is at the apex, for the reason that in these first-named situations the cavity is more apt to eat itself into the neighborhood of the ribs, and it is the contact of bone which makes the pus grow so horribly fetid.

CASE CXCV.—Captain H—, a man of fine build and healthy family, aged about 36, came under me in August, 1862. He had long been subject to cough, but had never spat blood. His complaint was of considerable pain in the right side, which, as an old Indian, he attributed to what they call "liver." In the lower lobe of that lung there were dispersed cracklings to be heard with the ear, and there was slight general dulness on percussion diffused through the lobe. This was in front; behind the sounds were healthy. The sputa consisted of transparent mucus.

Leeches and chloroform considerably relieved the pain for the time, so I suppose it was dependent partly on pleural inflammation.

In October of the same year his pain in the side was less sharp. The expectoration and cough were worse. There was very marked dulness with absence of respiration in the right infra-mammary and infra-scapular regions. He went to the South of France for the winter.

In the May of 1863 I saw him again. He suddenly, during a violent fit of coughing, had thrown up a pint of pus, and continued coughing it up. If the cough ceased for a little time, the pus would collect, and then, on being expectorated, tasted and smelled so intolerably nauseous that vomiting invariably was produced. This took place always every morning, when the matter had collected during the night.

I one day examined some of this fetid sputa under a microscope, and found pus-globules of various sizes, some regular and normally granular, some swollen and exhibiting their nucleus, fat in globules, granular masses (? rotten fat), tabular crystals of cholesterine, and spicular crystals which my microscopic lore was not sufficient to enable me to identify. It was anything but laudable.

Poor Captain H— was very patient, but a more distressing case I have rarely seen, so excessive was the disgust from the constant vomiting and fetor of the expectorata.

He got a little better for a time at Malvern in the summer, and was kept from sinking by cod-liver oil and quinine. But the abscess or vomica never healed up, and continued to secrete fetid pus. The dulness on percussion also increased in extent, so that there was scarce any breathing over the

whole lung; I supposed that a fresh deposit had taken place of tubercle, or whatever other matter solidified the pulmonary tissue. He died at Lisbon the next winter in an extreme state of consumption. However, he never had any diarrhœa.

The vomiting and fetid expectoration never seemed bettered by any medicine, except perhaps quinine, and that he could take very little of, such a headache it gave him.

It is impossible to bring to bear on a pulmonary lesion any of the usual applications that surgeons make to fetid abscesses; or else in such a case as the above one would be glad to use them. To bore an opening through the thoracic walls would probably be a great comfort to the patient and a prolongation of life; and I should be glad to find the operation consented to. But it is impossible conscientiously to speak of it as likely to effect a cure, and naturally the knife is shrunk from—I do not expect ever to try it.

SECTION IX.

Occasional causes of vomiting.

CASE CXCV.—Wilson M—, aged 29, a coach-painter, was taken in by me at St. Mary's Hospital the morrow of Christmas Day, 1862. He had always been a strong man till the middle of November, when he was aware of a pain across the loins and down the thighs, a tightness across the belly, and headache. At the same time he noticed first his face, then his body, swollen of a morning before going to work. He got himself cupped in the loins, but thought it did the pain no good.

On admission, the whole person was anasarcaous; the pain in back and belly remained; the bowels were regularly open once a day; his appetite for food was sufficient; his thirst more than natural; the urine was albuminous, pale, scanty, of the specific gravity 1.012.

Hot baths, a dose of jalap, and nitre draughts three times a day, were prescribed. He was kept in bed.

On the 31st of December the legs, and on the 3d of January the general anasarca, were nearly gone. He was ordered—

R.—Tincturæ Ferri Sesquichloridi ℥xv.
Tincturæ Digitalis ℥x.
Misturæ Camphoræ flʒj—Ter die.

During the use of this his feverish thirst diminished. He was made an out-patient on January 16th, his urine remaining albuminous.

On the 18th of February he was readmitted as too ill to be an out-patient. He had become very feverish and thirsty again, his tongue was white, and he

had dizziness of head and obscuration of eye-sight. At the same time he had been attacked with vomiting, and thrown up as many as twelve times in the day. He had no return at all of the dropsy, though the urine remained albuminous.

A day's rest in bed reduced the frequency of the vomiting to once a day. But that and the feverishness continued several days longer. Hydrocyanic acid seemed to do him good.

This case shows that it is the albuminuria, and not the dropsy (as some have suggested), which causes vomiting in Bright's disease. I think it very likely that the gastric glands may in the more obstinate of these cases be degenerated after the same fashion as the kidneys. In a continuous series of a hundred post-mortem examinations recorded by Dr. Handfield Jones in the "*Medico-Chirurgical Transactions*" for 1854,¹ out of twenty-four cases of renal degeneration only seven had the glandular structure of the stomach completely healthy.

CASE CXCVI.—Ann F—, aged 52, married, was admitted into St. Mary's March 18th, 1853, complaining of general throbbing, faintness, and what are recorded in the books as general "dyspeptic symptoms," of which the most marked were vomiting and tightness across the chest.

On auscultatory examination, the ribs were found rounded and immovable, and the cardiac region overlapped by emphysematous lung, so as to be, with all the rest of the chest, unnaturally resonant.

Hydrocyanic acid and chloroform relieved the dyspeptic symptoms somewhat. The remainder of the history has no bearing on my present subject.

CASE CXCVII.—Jane K—, aged 27, having had a distorted spine from childhood, it was impossible to ascertain precisely the anatomical condition of the lungs; but, as the heart was healthy, the probability is that the shortness of breath she suffered from arose from pulmonary emphysema. The reason of her coming into St. Mary's in June, 1856, was frequent vomiting, which exhausted her very much. This did not occur in any relation to meals, but at night. She was benefited by hydrocyanic acid, a jalap purge, and a fortnight's rest; after which she went out without complaint.

It is worthy of remark how the worst time of the twenty-four hours for the lungs of the broken-winded is also the worst for their stomach. It is at night that their paroxysms of dyspnoea come on, and at night this woman had hers of vomiting.

Dr. Hyde Salter, in his useful monograph, remarks—"It is very rare to see an asthmatic with a perfectly sound, strong

stomach, about which he has never to think, and in the history of whose case dyspepsia has no place. Sometimes the dyspeptic symptoms exist in a very aggravated form, and they are frequently such as to imply that the stomach disturbance is one of deranged innervation—that its sensibility, or its movements, or the nervous superintendence of its secretion is perverted. In these cases the stomach and lung symptoms are part of one morbid condition; the whole thing is deranged pneumogastric innervation, the dyspeptic symptoms being the manifestation of the gastric portion of this deranged innervation, and the asthma of the pulmonary portion of it.” He gives then a good example of the alternation of the two diseases, asthma and vomiting.¹

It has been observed already, in Case XLV (page 69), that liquids often disagree more than solids with emphysematous and cardiac asthmatics.

Some cases of intermittent vomiting seem connected with ague poison.

CASE CXCVIII.—Stephen A—, aged 54, an active, well-to-do farmer from the marshy neighborhood of Colchester, consulted me May 24th, 1860. He stated that he had always been a temperate man, and appeared to speak the truth. He had suffered from weight at the pit of the stomach, especially in wet weather, for near upon ten years, and at various times has occasionally thrown up some stringy phlegm from the stomach. (*Gastric Catarrh*. See “Weight.” In the summer of 1859 he had rather a severe touch of ague, which pulled him down a good deal, and he had never been quite the same man since. The stools were sometimes “yeasty,” sometimes dark, rarely natural. Since his ague he had vomited every other day, and at the time of the vomiting had a spasmodic pain just beneath the ensiform cartilage. He occasionally had vomiting and occasionally had pain at other times, but seemed pretty clear as to their general tertian character. I ordered him five grains of quinine every night and morning, and as I did not hear of him again I presume it was sufficient to effect a cure.

In the following case, a living irritant seemed the cause of vomiting.

CASE CXCIX.—Bridget W—, aged 20, spinster, was admitted to St. Mary's January 11th, 1861. She had very obstinate vomiting, especially in the morning, which resisted oxalate of cerium, bismuth, and pepsine, which were severally tried. Of the three pepsine seemed of most use. Then she

¹ Salter, “On Asthma,” chapter xii, section a, page 216 (Edit. of 1860).

had a diarrhoea, and passed two worms (probably the ordinary round-worm, but I did not see them). It was found that she had been very subject to worms since the age of fourteen, and was of a very mucous diathesis, having leucorrhœa and frequent catarrhal coughs. She was ordered turpentine, but I have no note of the result.

Hæmatemesis has been spoken of as the result of violence. Chronic vomiting also may be produced by the same cause.

CASE CC.—George S—, aged 21, a porter, was admitted to St. Mary's September 25th, 1858. He had had a fall six months previously, cutting his head and otherwise knocking him about. He was very giddy afterwards, and felt a violent pain near the navel, to which leeches were applied with relief. The pain extended backwards to between the shoulders. The next day vomiting of nearly all ingesta commenced, and continued more or less all the six months.

On admission, there was dulness on percussion, and tenderness to the right of the epigastrium; but this proved afterwards to be due to feces impacted in the colon.

The vomiting was very constant. He was obliged to be fed on a couple of mutton-chops very slightly done and pounded up, of which a teaspoonful was given every two hours with a little milk. He had fifteen grains of pepsine every four hours. But he kept on vomiting, and lost $2\frac{1}{2}$ lb. in weight.

On October 9th he was put upon liquor calcis, and milk and beef-tea, continuing the pepsine. Then he did not vomit for eighteen days, and got back to meat; but had to leave it off after a few days and resume the liquid. He gained at one time six pounds in weight while free from vomiting, but lost some of it during a relapse.

A good deal of hard feces was brought away by clysters, apparently with relief.

He complained of much pain in the epigastrium, which was relieved by a blister dressed with acetate of morphia sprinkled on the raw surface.

He got gradually better, with occasional relapses, due perchance to imprudences, and was discharged November 24th.

The pathological explanation of this case I take to be a partial paralysis of the intestinal canal by a sudden shock to the solar plexus, very much as the voluntary nerves are paralyzed in a concussion without lesion of the brain. This would account for the loss of vitality in the colon and stomach and œsophagus at the same time. Remark how gradual and slow was this man's restoration.

In all physical lesions of the nervous tissue, the main elements in the treatment are time and repose. With these the coolishness of prescriptions scarce impedes the cure; without

these the most judiciously selected means fail. The slowness of renewal is very distinctive of the nervous system, and is explained in a great measure by the difficulty exhibited in that tissue of parting with its substance by vital metamorphosis. In his experiments on the effects of inanition, M. Chossat, comparing the losses of substance in different tissues, found that the nervous suffered least; and indeed it retained its full weight after several weeks' starvation.¹ It is the true *ultimum moriens* of physiological interstitial decay, and of course it is the last and slowest renewed.

I have already, in a chapter on the social habits leading to indigestion, given examples of alcohol as an occasional cause of chronic vomiting;² but I omitted to mention a drug which I have found useful in that complaint. It was first used in this way by Dr. Marcet.

CASE CCI.—Jonathan B—, a middle-aged gentleman, came to me in May, 1861, for nervous trembling, indigestion of food, and vomiting, arising from indulgence in spirit-drinking between meals and in the forenoon. I gave him

R.—Zinci Oxidi,

Pilulæ Aloës cum Myrrhâ, aa ʒiss.

M. fiant pilulæ xx, quarum sumat unam ter die.

After taking these for ten days, as he afterwards informed me, he was quite well. Of course he had left off the excess of alcohol. Still I think the zinc was useful.

CASE CCII.—Charles W—, a patient with tubercular lungs, who used to consult me in the spring of 1862, had lodgings at Greenwich in an open situation for the sake of the air. He seemed to get all the worse, and took to vomiting in the morning, and having pain in the epigastrium. He always felt so much better during the day, and got so much worse during the night, that I was led to inquire more particularly into the peculiarities of his lodgings. I heard his bedroom was colored green, and on his bringing by my desire a piece of the wall-paper, I found it tinted with a light powdery arsenite of copper. He lost the dyspeptic symptoms when he changed his apartments.

I feel no doubt that here the arsenicated water color was the cause of the vomiting, though that is not its universal effect.

¹ "Recherches expérimentales sur l'Inanition," Paris, 1843, page 91.

² Pages 114 and 115.

Mechanical compression of the epigastrium by tight lacing, and by handicrafts where that part is exposed to injury, has already been spoken of as a cause of emetic indigestion. Another mechanical cause is umbilical hernia, though I cannot now lay my finger on a case in point—I have made an error in transcribing the reference. I do not, of course, refer to the acute vomiting of strangulated hernia, but to chronic vomiting.

Allied to these mechanical causes is cancer of the stomach and parts adjoining, which often causes vomiting. Cases of this and of ulcer, however, I will postpone to a chapter on the morbid anatomy of the stomach, for they illustrate that much better than they do the phenomena of indigestion. And the same may be said of gouty inflammation of the stomach.

Whether the vomiting of pregnant women will be capable of explanation on mechanical principles, or whether we are to look to increased knowledge of the nervous functions to interpret it to us, is doubtful. Its occurrence in the morning might favor either view, for there is both a change of mechanical relations in a change of posture, and also a marked weakness of nerve force, at that hour. The vomiting of pregnancy may often be stopped by directing the patient to leave off alcoholic beverages, of which the feeling of weariness from having to drag about an extra weight and general lowness of spirits often induce women to consume an extra quantity during their breeding. Instead of taking more, they ought to take less alcohol than usual at that time; instead of blunting their vitality, they ought to leave it free, for it has its fullest work to do. A simple milk diet, guarded by alkalies, for a few days, will frequently quite check the vomiting of pregnancy.

Vomiting the food first taken seems sometimes to arise from simple nausea consequent on taking food with repugnance, and is then curable by remedies which awaken a natural appetite. For instance,

CASE CCIII.—Amelia D—, aged 20, was admitted to St. Mary's June 19th, 1857. On admission, her general condition was as follows:—*Stature* small; *weight* 84½ lbs.; *complexion* fair; *skin* healthy; *pulse* 92, even, feeble; *tongue* clean, flabby; *bowels* daily; *urine* normal; *catamenia* monthly.

She was well fed, and not overworked; but her employment necessarily con-

finer her a good deal to the house. The thorax was healthy, though she told a tale of having had cough and hæmoptysis.

She complained of pain in the left side, and sickness in the morning, especially after breakfast. Her appetite was very bad, and the sight of food made her gorge rise at it; but still she forced herself to eat.

She was at first dieted on milk guarded with lime-water, rice pudding and ice, and took a grain of opium every night.

But after five days she was no better, so the opium was left off, and ten grains of Boudault's pepsine powder three times a day substituted for it.

In three days her appetite had returned, the vomiting and nausea had ceased, and she spontaneously asked for meat. She continued taking that with relish and without vomiting.

It would be easy to cite cases where drugs had effected the same purpose, but I chose rather to select an instance of the simplest form of restorative treatment (namely, the direct replacement of a deficient digestive solvent, so as to aid formative nutrition),¹ in order to direct the reader's thoughts to the true theory of healing.

SECTION X.

Sea-sickness.

The principal cause of the vomiting produced in those unused to it by the motion of a ship or carriage, by swinging, waltzing, and the like, I believe to be the relaxation of the œsophageal sphincter by the vibration. The body being at rest, or rotated on itself, and the œsophagus hanging somewhat loose in it, the jar is strongly felt, and the involuntary plexus supplying these muscular fibres is temporarily paralyzed by it. In fact, a succession of small strokes produces the same effect in unaccustomed nerves as one single, severe concussion.

In both cases use begets hardness; those who are exposed to much knocking about—wrestlers, prize-fighters, huntsmen, &c.—will get to stand blows that would once have stunned them; and the jar and swinging of the gullet and stomach in time ceases to be followed by relaxation of the sphincter. And some persons and animals, from perhaps a peculiar structure (I will not call it a malformation) of the parts, never experience sea-sickness at all.

¹ See "Lectures chiefly Clinical," 2d Introductory Lecture, "Disease and Cure."

The earliest notice one has of this oesophageal palsy is faintness or giddiness, which in a healthy and normally sensitive person always precedes sickness, whether arising from the poisoning of those nerves by an emetic, from blows on the stomach or head, or from swinging motions.

The relaxation of sphincters is always followed by the expulsion of the contents of hollow organs. Directly the anus is opened, the abdominal muscles act in forcing out the feces. So also with the bladder. And immediately after the relaxation of the oesophageal fibres, the diaphragm and its colleagues energetically press upon and empty the stomach.

Even after it is emptied, they continue to be spasmodically contracted, and the unhappy landsman lies retching and roaring, with nothing to throw up except a little bile, which the squeezing has forced backward through the pylorus. This is the worst part of the ailment, just as cramp of a stump or of a limb lying loose is more painful than when the muscles have some resistance to act upon.

Exposure to cold, either local or general, makes sea-sickness worse by lowering the vitality of the nervous tissues—partially numbing them, in fact. Artless landsman often aggravate their misfortunes by remaining on the wet, chilly deck in blustering weather; while the more experienced sufferers have avoided a great deal by immediately going below and getting warm and comfortable before the nauseating stinks begin to be rife. Sitting with the back leant against the funnel is also of use, if you cannot get below.

I have never had any valid experience of the proposition made of putting ice down the back as a preventive, not having travelled in any weather rough enough to be a good test since it was advertised. I am interested in the result, as it would a good deal affect my view of sea-sickness. Its having been set forth as a specific for cholera probably may prejudice the public against it, but should not influence the calm judgment of an experimentalist.

A thick belt or Spanish faja will sometimes keep off sea-sickness, partly from the local warmth over the epigastrium, partly perhaps from the compression keeping the stomach and

its neighbors mechanically steady. The benefit of lying flat on the back arises probably from a similar cause.

Temporary stimulants—ammonia, spirituous liquors, chloroform, opium—keep it off for a short time in some individuals; but oftener, I think, the reaction comes on very soon, and their last state is worse than the first. The beneficial action of the stimulants lasts longer if they are combined with carbonic acid, as in effervescing drinks. Aboard our Channel packets, "Soda and B." is popular; and I have found devilled lobster and champagne a real blessing in some rough weather off the coast of Portugal:—I have also tried good bottled porter *non sine gloriâ*.

The powerful effect of mental emotion in bracing us up against sea-sickness is very remarkable, and associates its pathology closely with that of other functional paralyses. This is said to be observed in a striking manner in shipwrecks, when fright renders every soul alert, though before there was any danger they had been exclaiming that they recked not what became of them. Of that I have no experience; but I remember once lying prostrate with nausea in a Peninsular steamer, when the captain, knowing I was a doctor, begged me to come and attend to an engineer who had got rolled into the machinery. Only one finger was crushed, but the binding up that and the encouragement of the frightened man quite cured me, though to an unapt surgeon the mixture of blood, grease, and coal-dust, entailed by a machinery accident, is not agreeable.

Almost always, the inconveniences of sea-sickness in a previously healthy person cease with the cause: landing or smooth water sets all to rights. But sometimes, as in the following case, there is illness afterwards.

CASE CCIV.—S. S.—, a middle-aged gentleman in fair health, accustomed to suffer in rough weather, went for a day's trip from Sorrento to Capri in an open boat. There was a good deal of wind both going and coming; but, contrary to his custom, he was not sick. He remained well that night; but on the morrow he was attacked with spasmodic pain in the right side of the epigastrium, so that I almost thought he must be passing a gall-stone; but the bowels were opened naturally with formed feces of normal coloring. The pulse also was unaffected. He made himself vomit with warm water and putting his finger down the throat, and brought up unaltered food which he

had eaten the day before. This vomiting was of no immediate use in giving relief, but it established the diagnosis of stomach-ache *vice* gall-stones.

The pain spread over the epigastrium, and as its spread became less, and gradually ceased the next night, helped probably by hot fomentations. But a certain soreness remained for a couple of days more.

I fancy in this case the paralysis had affected the muscular fibres of the stomach more than those of the œsophagus, and so a morbid condition was engendered, described in a former chapter as spasmodic pain of the epigastrium, or stomach-ache.¹ The gastric glands were also paralyzed; so the food was undigested, and not being of a fermenting nature, was unaltered.

Sometimes sea-sickness passes into a condition of chronic vomiting.

CASE CCV.—Eliza W—, a young single woman, was quite well till the beginning of October, when she came up by a Hull steamer to London during the equinoctial gales. She was violently sick on the voyage, and fancied she twisted something inside her. On landing the sickness did not cease, but continued till her admission to St. Mary's, November 14th, 1863. She had also got very hysterical, and said that one day she was quite paralyzed. Her tongue was very foul, her pulse natural, her bowels constipated, the urine painful to pass. Her right eye also became painful, and she could not raise the lid.

Under quinine and a chloroform poultice she got much better by the 26th of November. Then on its being found that the pupil of the painful eye was dilated, and the internal *rectus oculi* paralyzed, it was thought right to leech her temples.

On the 17th of December she was attacked with vomiting again, and on the possibility that the brain was inflamed the head was shaved and blistered, and iodide of potassium given. Apparent relief followed, but the patient got very hysterical. Finally the vomiting was stopped with valerian, but not till the end of February.

I have never heard of such a thing as chronic vomiting arising from sea-sickness in a man; and I suspect that the pathological interpretation is the passing of the temporary morbid condition into that which was described in a previous part of this chapter as hysterical vomiting; hysteria being much more common in the female sex than in ours.

I should presume shower-baths and valerian would be the

¹ Page 149.

best cures; but I have not the authority of experience, as the contingency is rare.

SECTION XI.

Review of treatment.

Ice or iced water swallowed is often most useful in the acute vomiting of fevers and of cholera. It stops the straining and relieves the distress. I presume it acts on the same principle as a shower-bath, by a revulsive shock to the nervous system. It is also a good astringent in bloody vomiting.

Rest in the horizontal posture and absence of excitement is a powerful remedy. It was adopted in all the cases quoted in previous pages.

Milk and lime-water as a sole diet for a few days is an application of the same principle of rest. It also was a *processus integer*.

Leeches will be seen to have often stopped vomiting. Not only in gastric ulcers, but in all anatomical lesions, including congestion of the stomach, their utility is readily understood.

Brandy, plain or burnt, in teaspoonful doses, is a favorite domestic remedy. It relieves the faintness which accompanies vomiting, and perhaps may be some check in acute cases, such as sea-sickness (q.v.). But it is obviously unsuited for severe or chronic disease.

Champagne and other *effervescing* stimulants come into the same category. I fancy the effervescence diffuses the stimulating ethers more quickly than when they are taken flat.

Chloroform internally may also be classed with them. Externally on the epigastrium it has not appeared to me of certain use.

Hydrocyanic Acid, when the vomiting arises not so much from a fault of the stomach itself as from a secondary condition of the nervous system, as in pregnancy, diseased heart, abdominal tumor, and in pulmonary consumption.

But in pulmonary consumption the most powerful remedy is *Opium*. In gastric ulcer also it is invaluable, and in painful malignant tumors. The *Valerian* and *Shower-baths* are both useful to the same class of cases. There are no remedies by

which I have oftener stayed chronic vomiting; simply because nervous debility is the most usual cause of it.

Carbonates of Magnesia, Soda, and Ammonia, and Hyposulphite of Soda, are especially indicated where there is acid or alcoholic fermentation of the vomited matters, whether *sarcina ventriculi* be found there or not. They act palliatively in arresting the decomposition.

Creasote is an uncertain remedy. I confess I cannot find what cases it is suited to. It has never done any good where the other remedies have been fruitlessly tried.

The administration of food in cases of chronic vomiting is a matter of much moment. We must not let our patients sink for want of it. Even when milk and lime-water does not check the retching, it is by far the best diet; and in teaspoonfuls it can almost always be kept down.

The risk of being starved to death from vomiting is not purely hypothetical. A young woman came under my care at St. Mary's in 1857, who had been deserted by her lover. She had had violent hysteria, and an utter inability to keep anything on her stomach for some days already; the pulse failed, and the tongue was dry and brown. An attempt was made to restore life by means of nutritive enemata, but in vain. At the post-mortem examination, every organ was in a completely normal state, and the catamenia were still flowing from the uterus. She had died of inanition only. The nutritive enemata were however proved right.

The treatment of sea-sickness has been discussed a page or two back.

CHAPTER VI.

FLATULENCE.

SECTION 1.—General remarks.—SECTION 2.—Eructation. SECTION 3.—Intestinal flatulence. SECTION 4.—Colonic flatulence. SECTION 5.—Treatment.

SECTION I.

General remarks.

WHEN we speak of flatulence it must be remembered that we must not set down all the air contained in the intestinal canal as morbid: we are not like old-fashioned nurses to be always looking upon "wind" as an evil. A certain amount of oxygen is wanted to aid in the acidification which is necessary to digestion; and as this oxygen is to be derived from the atmospheric air, it implies the presence of still more nitrogen. Carbonic acid is a sedative to mucous membrane, it is the natural atmosphere of all internal parts, and they become irritated and inflamed if they are deprived of it. Growth in wounds and normal secretion in mucous membranes go on naturally only when thus defended against external influences. Again, it is an important agent, indeed it may be called a great moving agent in the digestion and circulation through the body of aliments needful to growth.

There are several elements of nutrition, such, for instance, as the carbonate of lime and phosphate of lime, wanted for the bones and nerves, which are insoluble in water, but are soluble in water saturated with carbonic acid. This saturation is effected by the gas which remains in the bowels as a reservoir—as a reservoir, too, where a certain amount of compression is exerted, and the taking up of the carbonic acid is assisted just as in natural springs or in artificial fixed-air machines. This use of the air in the alimentary canal is really a most important one.

For the nitrogen I do not know how to find a use in the nutrition or modification of the tissues. Some of it is probably taken up by the blood, and excreted by the lungs, as in the expired air a considerable proportion of this gas is known to be found, forming, according to the latest experiments by M. Barral, one per cent. of the whole, and some may perhaps be made into ammonia. But to that which remains still in the alimentary canal an employment may be assigned, humble indeed, yet contributing most exceedingly to our comfort and health. The feces when they arrive at the ilio-cæcal valve are almost fluid, and are so largely mixed with water saturated by salts, that they are of greater specific gravity than ordinary water, and either sink in or become mingled with it. If now our digestive organs are not performing their duty well, or pass the mass on too quickly, it comes into the external air in a very similar state to that above described. It is a heavy, unformed, half-liquid pulp, diffusing itself inconveniently; but if partially dried by the gas present, and lightened by the admixture, it is much less offensive to the senses, and easier retained by the sphincter ani.

It is only then when in excess that I would speak of air in the alimentary canal as "flatulence."

SECTION II.

Eructation.

In approaching the subject of eructation it must be remarked that gaseous contents of the hollow viscera are differently circumstanced from liquids and solids; their high degree of expansibility by heat and their low specific gravity give them an inherent force which urges them outwards without any aid from the muscular system. Other contents of the stomach require the action of the expiratory muscles to expel them, whereas gas warmed by the body tends to rise through the œsophagus directly that tube is relaxed.

The essential condition is the relaxed and open state of the cardiac end of the gullet. The air, instead of being retained by the contraction of this powerful sphincter, finds its way upwards in greater or less quantity. The passage of the bubble towards the mouth, except in completely paralytic

patients, causes a reaction, and by the time it gets to the fauces it is compressed by the stimulated muscles, and is suddenly expelled. Hence the noise is greater than is caused by the mere bubbling of air up the throat, such as you produce in moving a dead body, or an apoplectic patient. There is a combination of relaxation with spasm, the former taking the initiative.

The relaxation is by no means so complete as in vomiting. The bubble of air is allowed to pass, and then the œsophagus contracts again immediately.

The following table exhibits a comparison of several analyses of the air found in different parts of the healthy human intestinal canal:—

| | IN STOMACH. Volume per cent. | IN ILIA. Volume per cent. | IN COLON. Volume per cent. |
|------------------------------|---|---------------------------------|--|
| Carbonic acid | { 14 (Chevreul) 25.2-27.8 (Chevillot) } | 24-39 (Chevreul) | { 43.5 -70 (Chevreul) 23.11-93 (Chevillot) } |
| Oxygen..... | { 11 (Chevreul) 8.2-13.0 (Chevillot) } | 0 (Chevreul) 2-3 (Chevillot) | { 0 (Chevreul) 2-3 (Chevillot) } |
| Nitrogen..... | { 71.45 (Chevreul) 66.8-59.2 (Chevillot) } | 20.08 (Chevreul) | { 18.40-51.03 (Chevreul) 95.2 -90.0 (Chevillot) } |
| Hydrogen..... | { 3.55 (Chevreul) a trace (Chevillot) } | 55.53 (Chevreul) | |
| Sulphuretted hydrogen.... | | | 1.0 (Marchand) |
| Carburetted hydrogen.... | | | { 5.47-11.6 (Chevreul) 28.0 (Chevillot) } |

With regard to the gaseous contents of the stomach, as exhibited above, it may be observed readily that more than four-fifths is atmospheric air, and the rest is carbonic acid in much less proportion than in the breath which is passing out of the trachea by expiration, and which constitutes the air of the mouth and saliva. The fact gives us a strong hint of its source. It is evidently in a healthy person swallowed with the food and frothy saliva in such quantities as to fill the organ up to the points of normal distension.

I think too in the majority of cases also, where the collection and evacuation of air from the stomach is so abundant and inconvenient as to be considered a disease, that we may trace out the same source of it. Observe paroxysms of sobbing,

globus hystericus, epilepsy, or chorea, and you will see great quantities gulped down. Watch those who are suffering from heartburn, and you will see them swallow air or frothy saliva, as if to relieve their discomfort.

Other persons have a careless, vulgar way of eating with the mouth open, which makes them swallow a quantity of air. Others have a trick of half consciously gulping it down; and a very silly aspect it gives them, something like a gobbling turkey-cock: you may notice them bridling up and tucking in their chins. I fancy the feeling leading them to do it must be something like that which makes horses crib-bite—a sort of modified heart-burn; but it is more trick than anything else.

In health all the air swallowed is readily absorbed. There are many individuals who never pass it away, upwards or downwards, for months together; indeed, so long as the perfect type of health is preserved, it may be said to be never excreted. After meals their abdomen is as usual distended with air, but it is all removed by absorption before the next.

In many morbid conditions this is not done. When the vitality is lowered, probably the function the most generally interfered with is absorption. The air collects, is swelled by heat, and expelled, although in no excessive quantity. Should the œsophagus be easily relaxed, there is eructation; should it be contracted, there is intestinal flatulence.

So far, the bulk of air swallowed has been supposed to be increased only by heat and expansion. But in some cases it is further augmented by gases disengaged from decomposed food. The occurrence of alcoholic fermentation in the digestive canal is proved by instances of vomiting, in which the matters ejected are visibly undergoing this chemical change. They are frothy with carbonic acid like yeasty beer, and they continue frothing up even when left to stand after ejection. (See Cases CLXXIII, CLXXIV, CLXXV, CLXXVI.) We can easily imagine what a disturbance in the stomach this must make, and are not surprised at the ejection of such a turbulent guest.

Fortunately this spread of alcoholic fermentation through the saccharine contents of the stomach is rare. Its features are so marked, and the discomfort it causes so great, that we should be sure to hear more about it were it common. The fact is,

that even where it begins and gives rise to the disengagement of some carbonic acid, it is rapidly stopped by the conversion of the sugar into lactic acid, a kind of fermentation more congenial to the temperature of the body. So that the "acidity," which in a former chapter has been spoken about as an evil, is a defence against one much more serious.

It will be seen from what has gone before that I class the cases of eructation which come before us into three groups:—

1. Those where there is simply a relaxed œsophagus, and the air, though only in a natural quantity, breaks upwards.

2. Where there is an excess of atmospheric air swallowed from habit, or in the attempt to relieve an uncomfortable feeling.

3. Where carbonic acid is formed by alcoholic fermentation, unchecked by acetification.

The gastric gases in elderly persons and cardiac patients sometimes collect in such quantities as to cause a paralysis of the muscular coat of the stomach, and put them in considerable danger by impeding the action of the heart and diaphragm, and causing deadly faintness. But in other patients it is rather the escape than the retention that is complained of.

SECTION III.

Intestinal flatulence.

A reference to the short table given in the last section will show that in the ilia there is an increase in the quantity of carbonic acid relatively to the oxygen, or, if we like so to regard it, a decrease of the latter. At the same time hydrogen, scarcely present in the stomach, forms a good half of the bulk. This hydrogen cannot be swallowed air, and is not likely to be excreted from the blood; for we do not know of any gas besides carbonic acid having its origin to any important amount from the circulating fluid. It must, I conceive, arise from the chemical changes going on in the remains of the food. I do not think any large quantity of air passes the pylorus, but that the bulk of the gaseous contents of the ilia comes from decomposition.

In a state of health this is reabsorbed nearly as soon as

formed, so that only for a short time after meals is the abdomen puffy; but, as I explained before, lowered vitality promotes the collection of air by arresting absorption.

Lowered vitality also increases the extent of decomposition, by diminishing the flow of bile. The action of this secretion on food is exhibited in the experiments made by MM. Bidder and Schmidt upon dogs.¹ They found that when the flow of bile into the intestine was cut off by tying the ductus communis choledochus, rapid chemical changes took place in all sorts of food. When the animals were fed on flesh the feces smelt like carrion; there was a continual rumbling of the abdomen and an evacuation of fetid air. When they were fed on bread only, odorless gases and sour feces were passed. No further injury beyond emaciation and weakness followed during the eight weeks of the experiments. From them we have a right to infer that one of the chief functions of the bile is to act on albuminous matters as an antiseptic, preventing their putrid decomposition, and preserving them safely to be exposed as much as possible to the absorbents of the alimentary canal; and that at the same time the excessive formation of acid from vegetables is checked, so that it may proceed gradually and as required by the digestive process. In fact, the condition produced in dogs by mechanically stopping the functioning of the liver answers exactly to the intestinal flatulence of dyspeptics in our species.

It may be observed that it is some hours after a meal, in fact just before the next meal, that the bile is normally poured in greatest quantities into the duodenum: in dogs in twelve or fourteen, in men about four or five. Now this is just the time when it is most wanted to prevent decay, and it is just the time when intestinal flatulence from its deficiency is most usual.

Flatus in the small intestines is the most troublesome sort of wind. Should it escape upwards through the pylorus into the stomach it is apt to cause vomiting; or sometimes it constitutes most nauseous eructation of sulphuretted hydrogen. Luckily this is rare. There seems too to be considerable difficulty in the passage of air through the ilio-cæcal valve. Hence it rolls about in the abdomen from the changes in position which the

¹ Bidder and Schmidt, "Die Verdauungssäfte," p. 230.

motion outwards of the alimentary masses involve, and causes the well-known and distressing grumbling of the belly or "borborygmi." The abdomen will often be distended for several days with it, without its being able to escape or to be absorbed.

The persons most liable to this troublesome affection are fat anæmic and hysterical women; it accompanies also the small and contracted liver of spirit-drinkers, and sometimes is very annoying in cases of dilated heart. In all these cases there is a deficiency of bile either from the inefficiency of the liver cells or obstructed circulation. Some persons, in apparent health, are habitually much troubled with it. We may attribute it, under these circumstances, to a naturally sluggish portal circulation, which does not so quickly absorb the contained air as a freer current through the bloodvessels would enable it to do.

Flatus in the intestines is troublesome during the day, from the tumidity of the abdomen, and noise on motion, and pain in the side; but when it comes at night it causes still more inconvenience by preventing sleep. It is hard to explain why this should be; there is not enough pain or discomfort to account for it, yet a complete wakefulness and apparent want of wish for sleep commonly prevails. It is to be remarked, also, that this insomnia is in most instances made worse by opium. Sometimes the patient will go to sleep easily and naturally on first lying down, and will then wake up in an hour or two, finding the abdomen tumid and uncomfortable, and will remain entirely without rest for the remainder of the night; or if there is a lapse for a few minutes into unconsciousness, the uneasy sleep seems rather to aggravate than relieve the feverish restlessness, and to cause headache.

During this unnatural repose men are often annoyed with disgusting erotic dreams and abnormally frequent seminal emissions. I have never ascertained whether any analogous effect is produced in the female sex. The line of causation cannot at present be traced, the bowels and the generative organs appearing to have so little to do with one another.

It is intestinal wind that is generally complained of by patients who are bad enough to be driven to a doctor, and is that which is generally alluded to as "flatulence" in the cases in an earlier part of the volume. When tasteless and scentless it is

from indigestion of starchy food, when fetid from indigestion of albuminous food.

With the former is most usually joined costiveness and constipation in chronic cases, with the latter looseness of bowel. Indeed, it is rare to find sulphuretted hydrogen or hydrosulphate of ammonia excreted without watery or soft pultaceous stools. They appear to be purgative poisons.

SECTION IV.

Colonic flatulence.

Flatulence in the colon may be distinguished from that in the small intestines by its position ascertained by percussion, by the absence of rumbling (except a little bubbling through the ilio-cæcal valve just before it escapes), and by its passing out freely per anum.

A reference to the table in page 225 will show in the normal gaseous contents of this part of the bowels the presence of sulphuretted and carburetted hydrogen. But in health the quantity of the former is not enough to overcome the smell of feces, which is the prevailing odor. In disease the sulphuretted hydrogen, arising from the decomposition of organic matters unchecked by the normal flow of bile, is in excess.

When much sulphuretted hydrogen is present, there may be a diarrhoea of feculent matter; but in moderate quantity it may even be joined to costiveness and constipation. The colon is not so sensitive of it as the small intestines.

Colonic flatulence is not nearly so distressing as intestinal, and does not cause so much wakefulness or other nervous disorders.

SECTION V.

Treatment.

Eructation may in some cases be stayed by solely a direct restorative treatment of the cause. The defective digestion may be replaced by artificial gastric juice. For example—

CASE CCVI.—James B—, a laborer of 50, was taken in at St. Mary's April 20th, 1856, for a catarrhal cough of ten weeks' standing, with some

congestion of the lower part of the lungs. The object of admitting him was to give his cough the benefit of the regulated temperature of the ward, with rest. No cough medicines were considered needful. But he complained that after meals he had throughout his illness been troubled with wind breaking up from the stomach. It was tasteless and inodorous.

Fifteen grains of Bouldault's pepsine powder was administered daily with his dinner. On the 25th the flatulence was relieved, and he went out well on the 1st of May.

Where excess of air is swallowed from abnormal sensibility and breaks up the eructations, valerian and ammonia are useful, but above all shower-baths. I do not know any disease in which their value is more marked. The more the patients can bear of them the better, and the sooner they can get educated to take them in full quantity and cold the better. First let them be administered tepid, then with the shower cold and the foot-ban warmed with hot water, then all cold, and each day let the quantity of water be gradually increased till the full extent the bath will bear be arrived at.

Examples of this principle of treatment are given in Cases CLXXVIII, CLXXXI, CLXXXIV, CLXXXVI.

When the eructations depend on the formation of carbonic acid by alcoholic fermentation, the hyposulphite of soda is indicated. See Case CLXXXVI.

Eructation from this cause is rare without vomiting.

The aim of the treatment mentioned is to prevent decomposition of organic matters. In the laboratory we find that nothing is so powerful in this respect as sulphurous acid; and accordingly it is used in various processes of the arts for the purpose. Sulphur is burnt by wine-growers in casks to arrest the fermentation which is apt to be going on in the liquids soaked up by the cracks or porous parts of the staves, and the acid vapors effectually do their duty. The agents of the Board of Health find no disinfectant for sewers so quick and certain in its action as Macdougall's, the chief ingredient in which is sulphite of lime. Muscular tissue may be prepared on the same principle, and keeps as well as when salted or dried; and we may test even on such a delicate substance as yoke of egg how fresh it keeps with sulphite of salt. The same effect is produced by

taking as a medicine hyposulphite of soda; the fermentation of the contents of the stomach is arrested, and the evil effects of that fermentation prevented.

But it must be remembered that the digestion of the meat is also checked. Dried, salted, or otherwise, chemically prepared victuals are not so soluble as fresh, indeed, if completely dry they are not soluble at all; and to continue the hyposulphite of soda long would put the patient into the condition of a sailor reduced to salt junk.

A safer, but equally powerful arrester of chemical changes is charcoal. When soup has begun to turn in hot weather, economical cooks heat it up with a little bag of charcoal in it, and it becomes quite sweet. This shows that the carbon does something more than merely condense the gases formed. The same agent will accomplish the same result in the alimentary canal. I myself have used it truly only in cases where decomposition producing flatulence occurs in the intestines; but I should not hesitate to give it in gastric fermentation also, if hyposulphite of soda chanced to disagree or had failed in its effect.

The general treatment of indigestion by quinine and strychnine, as several times here advocated, is specially indicated in eructation.

Intestinal flatulence exhibits best the power of charcoal, because the air has more difficulty in being got rid of without some such help, and the air formed by decomposition is peculiarly copious and troublesome.

In ordinary cases one usually joins several other remedies to the charcoal, such as quinine and strychnine (for the reason given a few sentences back), and soda and valerian, or galbanum, or assafoetida, so that the action of the carbon is complicated. I have therefore selected for the nonce a rather out-of-the-way instance, in which the collection of air took place in consequence of a mechanical lesion entirely preventing its passage (for the small exit must have been always blocked up by feces), and in which the only antiseptic and absorbent used was charcoal.

CASE CCVII.—Elizabeth C—, aged 63, was admitted to St. Mary's January 15th, 1857. Though thin and not muscular, she had always been a hard-

working active woman, and had borne thirteen children, of whom but two were dead, one of phthisis and one of scarlatina. She herself could recollect no illness except scarlatina and child-bearing, till five months ago, when she noticed that the left side of the abdomen was often swelled, and that the swelling was relieved by a copious explosion of wind by the anus. A like swelling she also perceived some time afterwards on the right side, since which she had not so often been relieved by the passage of wind. She had also frequently a feeling of numbness and involuntary twitches in the legs.

She lay on her back, when I visited her, with the abdomen raised up by a great collection of air. It measured thirty-eight inches in circumference. No solid tumor could be felt. The bowels were very constipated, and under the influence of purgatives only a little fluid feculent matter, but no air, was passed.

An attempt was made to relieve her by passing a tube up the rectum, but no air was let off even then. A many-tailed bandage was bound tightly round the belly, but no diminution in size followed. Turpentine, too, was administered, but it was fruitless.

On the 22d I ordered a drachm of charcoal to be given every other hour, the bandage being still kept on. On the 25th she was much better, the distension being much less. On the 27th she had increased somewhat, so I added 1-12th of a grain of strychnia to the powders on those occasions daily. From that time we continued to find the abdomen softer, the patient lost her pain and gained strength, but with occasional relapses of distension.

On the 20th of February she was able to get up. Her bowels were regularly opened by a simple enema, with sometimes a few drops of cajuput oil. Her tongue was clean and the general health was good, and in the beginning of March she was actually assisting in the work of the ward. She herself pronounced that she was well enough to return home, and arranged to do so on the 23d. However, early in the morning of that very day she suddenly died, the only warning of her being worse having been a certain relapse of distension on the 21st.

On post-mortem examination there was found in the lower part of the ileum, on the right side, an occlusion, as of a hard contracted scar, without any peritoneal adhesions. The occlusion, at first view, seemed quite complete; but on further manipulation a dissecting probe was passed through it by a winding passage. Above this the intestines were greatly distended with air and semi-fluid black feces. But what surprised us was the *entire absence of fetid odor* in all this matter so long retained. It was not nearly so unpleasant as that found in a corpse accidentally killed in full health.

The last observation is my reason for my citing here this somewhat long and painful case. If the charcoal can so act where a mechanical impediment confines the gases to the intestines as by a ligature, and half kills them by strangulation, it must be still more powerful when it is aided by the vital force still remaining only slightly arrested, as in ordinary cases.

For, in truth, people may be very flatulent without being very ill.

Charcoal being tasteless is not disagreeable to take when you have got over the grittiness in the mouth. The only other objection I have had raised is its color. A wit of the Midland Circuit told me I was turning his "colon" into a "coal-hole."

It is scarcely needful to say that easily fermentable articles of diet must be for some time shunned, if the patient would avoid a recurrence of the complaint; and it stands to reason that cold bathing, sea-water—and in short all hygienic remedies which improve the general health—will conveniently accompany the standard treatment by quinine and strychnine.

Great advantage arises in intestinal flatulence from the use of such expedients as restore the flow of bile in full quantity; a chief business of that secretion being the prevention of chemical decomposition in organic matters.

Temporary use may be made of drugs. *Mercurials* (viz., the gray oxide and calomel) were found in some experiments made by Dr. Handfield Jones on animals to increase the production of yellow matter in the cells of the liver.

Muriate of manganese and *colchicum* had also the like effect.

Nitro-muriatic acid during life caused a flow of bile *per anum* in a cat; but there was no excess of yellow matter in the hepatic cells *post-mortem*.

Aloes, *Oil of Turpentine*, and *Rhubarb*, acted much as Nitro-muriatic acid.

Antimony promoted in the liver, as in all the mucous membranes, a copious flow of water and mucus.

When mercury was given there was also great sanguineous congestion of the liver, which, on the contrary, was pale after an administration of drugs which had not augmented the yellow matter.¹

We have thus in our Pharmacopœias most powerful agencies for modifying the quantity and quality of the bile. And it cannot be doubted that further inquiry may extend widely our knowledge of the nature of our already existing numerous

¹ "Medico-Chirurgical Transactions," vol. xxxv. p. 249, and "Medical Times and Gazette" for March 19th, 1852.

tools, so as to confer incalculable benefit on rational medicine. Chemistry cannot render any account of their mode of action; this action has in it something essentially vital, or if you like the term better, essentially physiological. Still we must bear in mind that, as far as we can see, it is temporary; and, since no one would wish to continue their use for life, we must mainly depend in the end on more direct restoratives of life for final cure, such as are pointed out in the experiments on food.

It was found by Drs. Bidder and Schmidt that a *full diet* augmented not only the quantity of the bile, but also the amount of solid material therein. Thus whilst a cat on ordinary diet secreted 0.807 of a gramme per kilogramme of weight hourly, and of solid material 0.045 of a gramme, on very full flesh diet the secretion was in one cat 1.185 gramme of fluid, and 0.062 of a gramme of solid, in another 1.003 of fluid, containing 0.063 of solid. The same fact was fully confirmed by observations also upon dogs and geese, the details of which correspond to the above.¹

Flesh diet causes the secretion of more bile than vegetable food. For example, in an experiment made by Dr. Nasse on a dog,² a diet of bread and potatoes caused a daily secretion of 171.8 grammes, in which was 6.252 of solid matter; whilst meat made it amount to 208.5 of fluid, or 7.06 of solid residue.

Water increases the quantity of the bile within an hour after it is drunk, and not only the quantity of fluid, but also of the solid contents, though in a less proportion. Thus a dog weighing about 5 kilogrammes, which after a meal of 185 grammes of *beef alone* secreted in an hour 2.283 grammes of bile with 0.135 of solid matter in it; after a meal of 25 grammes of *beef and 158 of water* secreted 4.030 of fluid, and 0.117 of solid bile. And the same dog, after 185 grammes of *water alone*, made no less than 5.165 of bile, or 0.143 of solid matter. And the same thing was observed in the three other similar experiments.

To this Dr. Nasse adds, though water increases the fluid bile and also the organic solid constituents, it does not have the like effect on the amount of salts.

¹ o. u. c.

² Nasse, "Commentatio de Bilis quotidie à cane secretâ copiâ, &c." Marburg, 1851.

On the other hand, it was found by Bidder and Schmidt that *fatty food* instead of increasing, as might have been expected on chemical grounds, the quantity of bile, extraordinarily diminishes it. Thus in a mean of three experiments on cats, the hourly discharge after a diet of pure fat was of bile 0.327, of solid matter in it 0.036 of a gramme. We might have supposed that the formation of a substance which is the most hydro-carbonaceous in the body would have been promoted by a peculiarly pure hydro-carbon aliment: but such is not the case. Nay, so far from it, that the numbers given above correspond most closely to what would probably have been the quantity of bile secreted by the animals in a state of complete deprivation of food. Fat appears to be eminently "bilious," as the vulgar tongue expresses it, that is to say, it diminishes the vitality of the liver.

Alcohol also by arresting metamorphosis¹ must tend to diminish the flow of bile.

The rule then in intestinal flatulence is to use a full diet of lean meat and water, to avoid fat, butter, and rich sauces, and to diminish the allowance of alcohol. To this end the standard treatment of indigestion, quinine and strychnine, is a great aid, as are also ammonia and valerian.

Flatus in the colon requires the same medicinal and dietetic treatment as that of the intestines. When there is a tendency to congestion of the rectum and to piles, as not unfrequently happens, cold water enemata are useful, and in elderly persons a carminative, such as extract of rue, or a few drops of ether, may be added to the enemata.

When the abdomen is not much more dilated than natural by flatulence, efforts should always be made to retain the wind inside the bowel till the period of fecal evacuation. For not uncommonly the parting with it induces a condition of constipation. It will roll about uncomfortably for a time, but will soon either become absorbed or mixed up with the feces, and so induce a normal evacuation, as described in a previous page. The proof of this is that it is not afterwards passed.

¹ See "Lectures chiefly Clinical," Lect. I, "On Alcohol."

CHAPTER VII.

DIARRHŒA.

Difference of diarrhœa from more frequent evacuation.—Subdivision of forms.—Their causes and indications.—Supplementary and reflex diarrhœa.—Infantile.—In typh-fever.—Ulceration of bowels.—Mucous flux.—Copious solid diarrhœa.—Acid diarrhœa.—Use of Opium.—Riding in chronic cases.—Cautions to travellers.

WHEN the absorbing power of the intestines is defective, the consequence is an excess in the *quantity* of matters which pass through them; that which ought to be taken up is carried along out into the normal draught, and so constitutes a true diarrhœa.

It is of great practical importance to distinguish this from the mere frequency of evacuation, which is quite consistent with a natural or even deficient amount of feces. The number of motions, or the number of times an inclination is felt to void them, is often increased when less than the average quantity may be passed in the twenty four hours. This affection is of the nature of tenesmus, and arises from an abnormal state, sometimes ulceration, sometimes piles, sometimes cancer even of colon or rectum; whereas true diarrhœa, as aforesaid, depends upon defective function of the ilia.

The arrest of function, as declared by the prevailing contents of the stools, constitutes the best principle of division which has been moreover adopted in the chapter on vomiting; and according to it we may speak without much danger of being misunderstood of *crapulous*, *bilious*, *serous*, *dysenteric*, and *choleraic diarrhœa*.

Crapulous diarrhœa is simply an excessive quantity of food taken, or arrested in its solution by suspension of the gastric function. I call it *crapulous*, because it is most usual after a debauch; but in weakly persons it is not necessary that the

intemperance should be absolute; that which is moderation for others may be an excess in them. An examination of the feces exhibits a quantity of undigested food as the prominent feature, sometimes fetid and fermenting, and rarely with enough bile to prevent decomposition.

Bilious diarrhœa is the next simplest form of the disorder. Bile, normally poured out by the liver to the extent of from three to four pints a day, if not concentrated by the intestinal absorption, adds largely to the excrements, where its presence is declared by its well-known smell, and by a color exhibiting various shades of yellow, brown, and olive-green, according to its absorption of oxygen and mixture with feces.

This arrest of the absorbing powers of the intestines and consequent rejection of bile mixed at first with feces, and augmented by the exudation of water from their parietes, is what so often takes place temporarily from the impression of cold, from irritation of the alimentary canal by unwholesome food, and from mental emotion. It is possible also that the qualities of the bile itself may be altered in some cases, or its quantity increased. It may be poisoned by drugs, as by calomel or by senna, and so rendered incapable of absorption, and be poured through the ilia without their being in fault. Congestion of the portal system, such as is especially frequent in Europeans resident in warm climates, causes the bile to be at one time deficient, and afterwards to be poured out in excess. Irritation of the stomach and duodenum causes it to be retained in the liver and gall-bladder till it is unfit for absorption. In both these cases it is rejected by the bowels and constitutes bilious diarrhœa.

We should distinguish this symptom from a different one sometimes confounded with it—viz., the presence of a light grass-green matter in the stools. This is not bile at all, but altered blood, and denotes inflammation of the mucous membrane, a state requiring very opposite treatment from that proper for bilious diarrhœa. Our best aids to diagnosis are first, the smell:—in real bilious stools the odor of the hepatic secretion can always be perceived in spite of the feces mixed with it; while in the grass-green stools the smell is not of bile, but more or less putrid. Secondly—the microscope exhibits in the mucus

the usual globules mixed with small shreds of fibrine and blood-globules.

In *serous* or *watery* diarrhœa it is probable that there is an increased exhalation of aqueous fluid from the bloodvessels of the intestines, as well as an arrest of its absorption. In this form, when pure, if the feces are retained by a voluntary effort, they may be concentrated nearly to their normal condition by the removal of the water, and thus a test afforded that their state depends mainly on the addition of this constituent. For that which can be so readily taken up again into the blood cannot be of a nature very foreign to it. If a saline purgative be taken, you may feel several pints of fluid rolling about in the bowels; but if you resist the inclination to stool, it goes off at last, and you void afterwards little more than the ordinary amount of semi-solid feces. It is not so in bilious or inflammatory diarrhœas.

Watery diarrhœa, when not arising from the action of neutral salts, indicates a congested state of the venous plexus of the alimentary canal, and a consequent morbid proneness to deficiency in absorption. The vitality of the mucous membrane is deficient; and if it be not restored, local death, exhibited in the form of ulcers and sloughs, must result. The exhalation, however, tends to become habitual, and so continues beyond the period of congestion, so that the whole mass of blood is relieved of its water, and in this way sometimes dropsical swellings may be reabsorbed and pass off through the bowels.

In *dysenteric* or *muco-purulent* diarrhœa, water is in excess, but the characteristic is the presence of mucus or pus-mixed with it; in which also there are shreds of fibrine, blood-globules, and flakes of the epithelium of the bowels.

Should any of these products of inflammation be unmixed with feces, then it is probable they come from the colon or rectum; but if they are mixed up with a large quantity of watery fluid, and still more if that watery fluid shows itself to be the serum of the blood by coagulating with heat, then there is little doubt of their source being the mucous membrane of the ilia. The fluid in muco-purulent diarrhœa is always highly alkaline, and if it is examined with the microscope, phosphatic crystals are found scattered through it. If allowed to stand, it

separates into two parts: the one *serous*, varying from transparent whiteness through all the shades of yellow to deep brown; or, where blood is present, to red and black, in which are the flakes of fibrine, the ammoniacal crystals, and floating globules; the other *sedimentary*, consisting principally of gray, granular matter, the débris of food mixed with more or less of the coloring matter of the bile and half-digested blood.

The degree of serosity and the proportion of the products of inflammation in the first, show the extent to which inflammation has gone in the mucous membrane; whiteness, bloodiness, putridity, alkalinity, being bad signs; yellowness, opacity, the smell of bile, and the absence of putridity, being good.

The second, or sedimentary portion proves the condition of the general system rather than of the ilia in particular. If it is copious in proportion to the fluid, then the normal function of destructive assimilation is shown to be little interfered with; if scanty, then we know this process to be arrested, the effete tissues not being removed from the body, and a more grave state of affairs exists. The quantity of solid matter is the best test of an advance towards health, or departure therefrom, in all cases where there is this state of bowels.

The most common examples of muco-purulent diarrhœa are found amongst acute diseases, in low fever, enteritis, and dysentery, especially in the teething dysentery of children. Amongst chronic diseases, ulceration of the bowels, whether a consequence of phthisis or low fever, it is the usual course.

Bloody diarrhœa, where the blood is in small streaks in the mucus, or slightly mixed with the serum, or mixed with the grass-green mucus above described, shows recent inflammation. When it is in clots, either black or fibrinous, with the globules partially washed away, that a bloodvessel of notable size has been opened, probably by ulceration. Should pus be mixed with it, the diagnosis of ulceration is confirmed. Black, semi-digested blood, precipitated by standing with the sediment of fluid stools, comes from high in the alimentary canal, not infrequently from the stomach itself.

Putridity of the stools in diarrhœa always shows that there is an imperfect quantity of bile, one of the most clearly ascertained functions of the hepatic secretion being to prevent decay of

albumen. Putridity may arise from two sources—namely, the food taken, or the secretions into the canal. A close examination of the stools will generally distinguish them; for if it is non-digested food which is decaying, then the solid constituents of the feces are bulky, pale, containing large lumps of still paler substance, which under the microscope will be found to consist of muscular fibre, fat, and other parts of victuals, often swarming with infusoria. Whereas if the fetor arise from the decomposed albumen of the serum, it will be observed to exhale from the more fluid part of the motions, which smell like the washings of macerated flesh, while the solid part is scanty and comparatively unaffected. This shows a much more serious state of the vital powers, and in severe complaints is often the harbinger of death, especially if joined to a peculiar mouse-like smell in the sweat.

In *choleraic* diarrhœa the whole of the blood is so altered in its physical qualities that little of it remains capable of supporting life, or of absorbing the wherewithal to support life. The functions of the liver and kidneys are suspended for want of live blood, no blood appears in the stools or vomit, no urine in the bladder.

(For the purpose of comparing the degree in which life is deficient in the different forms of diarrhœa, I subjoin a table in which the first column is occupied by the several functions, the loss of one or more of which characterizes those different forms. It will be seen that the sign of minus can be placed against one after the other till the normal condition of all is finally lost, as an essential, not accidental, part of the disease.)

| Full life. | Crapulous diarrhoea. | Bilious diarrhoea. | Serous diarrhoea. | Dysenteric diarrhoea. | Choleraic diarrhoea. |
|--|--|---|--|---|--|
| 1. Blood healthily sufficient for the support of the whole system. | 1. Normal. | 1. Normal. | 1. Normal. | 1. Normal. | 1. — (Mass of blood poisoned and half dead primarily affects the whole system.) |
| 2. Coats of capillaries elastic and retentive of the contained blood. | 2. Normal. | 2. Normal. | 2. Normal. | 2. — (Coats of capillaries wanting in elasticity, becoming congested and ruptured, let out the blood. The other stages of inflammation may or may not follow.) | |
| 3. Exosmosis and endosmosis of serum through the mucous membranes equal to one another. | 3. Normal. | 3. Normal. | 3. — (Exosmosed serum passed away by stool, instead of being reabsorbed.) | | |
| 4. Bile made in full quantity; its fluids reabsorbed by intestines, and its colored solids only rejected per anum. | 4. Normal. | 4. — (Constituents of bile not absorbed, but passed away, forming the bulk of the dejections, and shown by the smell to be unaltered.) | | | |
| 5. Food fully digested. | 5. — (Undigested materials of diet passed away with feces, and hurrying downwards the bile and other contents of the intestines.) | | | | |

In some instances of mucous flux and indigestion in the upper part of the alimentary canal, the stools are acid from time to time. There is nothing special in the pathology of this. It arises simply from so much acid being formed from the decomposition of food, that it cannot be neutralized by the alkaline juices. Sometimes the acidification takes place in the stomach, sometimes in the cæcum, during the delay of the decomposing aliments there. In the latter case considerable pain is often experienced in the right iliac region, and in the course of the colon just before the evacuations.

In all forms of diarrhœa from affections of the small intestines the evil is twofold; first the aliment, which ought to contribute to the support of the system, is hurried through the abdomen, and so the supplies are cut off; and secondly, destruction is carried on at an increased rate by exhalation from the mucous membrane of the bowels. The stick is being cut away at both ends, and hence there is nothing which produces such rapid emaciation. Where so-called "diarrhœa" is reported to you as lasting for any length of time without emaciation, always let your suspicions of the correctness of the nomenclature be roused, and observe carefully whether the quantity of excrement be really in excess, or whether the ailment have not rather the nature of tenesmus, and arise from the colon or rectum. You will generally find such to be the fact, and must vary your treatment accordingly.

Sometimes diarrhœa seems to be the transference of a tendency to exudation of serum from another tissue to the alimentary canal. Such is that which sometimes comes on of its own accord or may be artificially induced in ascites, and which certainly sometimes diminishes the abdominal collection. Such is the diarrhœa of uræmia, which, however, does not usually relieve anasarca, but rather increases it from the weakening of the blood which follows. Hence it is a very bad, almost a fatal symptom, in Bright's disease.

The most important part of treatment is the diet. It must be such as does not need a perfect state of the digestive organs for its absorption, while at the same time it is nutritive to the patient. The best of all is milk and lime-water. In feverish cases it may be iced, and soda-water may be occasionally sub-

stituted for the lime. Keeping a person solely on this diet is often alone sufficient to cure all sorts of diarrhœa not dependent on a permanent chronic cause; and even where there is such a cause for it, much temporary benefit is derived, and a sounder starting-point for medical treatment than the previous state is gained.

In a temporary diarrhœa without other disease, the loss of the normal supply to the body is not of much consequence, a short starvation perhaps does good to a person otherwise healthy. But in severe acute disease, or in long-continued chronic diarrhœa, this is an important consideration, and care must be taken to allow for it. Since food in the usual quantities at once cannot be borne, and is rejected undigested, give it very frequently and in small portions. The alkaline milk diet I have just recommended allows this to be done most conveniently. A jug of the liquid must be kept close at hand, and sipped from time to time, so that as much nutriment may be taken in the twenty-four hours as would be done by a healthy person.

It is a good rule when there are lumps of feculent matter in the stools and a smell like that of normal excrement, to give purgatives, and when there is no normal smell present, to abstain. For it is only the remains of previous constipation that require to be got rid of, and when they are not present, harm is done by purgation. I have known cases of chronic diarrhœa much injured by the routine practice of so beginning treatment.

Where the products of acute inflammation are found mixed in the stools, such as white and opaque mucus, flakes of fibrine, epithelium, blood-streaked mucus, bright green matter, &c., as above described, then leeches, fomentations, warm hip-baths, and poultices to the abdomen are appropriate and should not be delayed. In children, the whole abdomen and loins may be fastened up in a large circumambient poultice, which they cannot wriggle away from, a leech put on near the navel, and the bite allowed to bleed for a little time. The articles of *materia medica* I have most trust in are opium, ipecacuanha, and carbonate of soda. A syrup may be made of ten drops of laudanum, two grains of ipecacuanha powder, and a scruple of soda in an

ounce of half treacle and half water, and doses of not over a teaspoonful given at hour intervals. I have found this answer better than the old plan of administering calomel. In teething infants this treatment is of the most marked utility. I suppose the anodyne soothes their neuralgia. In their case too lancing the gums will sometimes stop a most violent diarrhœa where the stools show evident proofs of the inflammatory condition of the ilia. The action of lancing is probably much the same as that of leeches, viz., a relief to the congestion of the mucous membrane. Upon the protrusion of the teeth it can hardly be supposed to have any influence, but that it alleviates toothache any adult can experience on himself, though it is impossible to get from his little patients an account of this remedial effect.

But there is no doubt that the most active cure in infantile diarrhœa is change of diet. Bringing up by hand or unwholesome states of the breast-milk are generally at the bottom of the ailment. No remedy is equal to a healthy wet-nurse, or where prejudice forbids that, as near an imitation as can be made of human milk by that of animals, such as the donkey's or the cow's diluted and slightly sweetened.

In low fever the presence of diarrhœa indicates to many practitioners, and used to indicate to many more, the employment of mercury. The effects of this is the increase of solid sedimentary matter in the stools; in other words, a restoration of the destructive assimilation going on in the body. The motions are diminished in number and in fluidity, but not in actual quantity. In fact more solid effete matter is excreted, and thus the tissues devitalized by the typhoid poison are removed, and room is made for new nutriment. This increase of solid matter is taken as an evidence and test of benefit accruing from the use of mercury, and as a prognosis of good. But I must say without reserve (and am glad of the opportunity of so doing), that I think this an unwise hurrying of nature; for only the destructive assimilation is augmented; not the constructive, and thus the powers of the body and its resistance are lowered. Now the use of mineral acids both stops the diarrhœa and increases at the same time the absorption in the intestinal canal. For some years therefore I have employed no other remedy in

low fever, and with singular success, as I have more largely set forth in my published "Clinical Lectures."

Where, in the absence of fever, blood is passed by the bowels, the two most powerful means of checking it I have found to be turpentine and acetate of lead, especially the latter. Its direct influence as a poison on the bowels would have led to an expectation of this. If the hemorrhage has gone on for some time, I am inclined to think it must be sometimes due to a clot distending the bowel, and preventing it contracting upon the bleeding spot, for certainly a dose of castor oil, in the results of whose action a quantity of pale clots were exhibited, has several times in my experience stopped bleeding.

Diarrhœa from ulceration of the ilia tends to prolong itself; for the weaker the system is, the more irritable are the sore places, and the less can the morbid actions they set up be resisted. It is wrong, therefore, to let it go on an hour longer than we can help. The readiest means for arresting it are such as blunt the sensibility of the ulcerated spots. Milk and lime-water diet should be used first, then chalk and opium, which appear to act on the sore mucous membrane just as they do on a raw blistered surface of skin. If these fail, sulphate of copper should be used in doses increased from a quarter of a grain up to two grains.

Where there is a simple flux of transparent mucus without fever or pain on pressure, and no fibrine or blood in the motions, the vegetable astringents, such as logwood, bark, kino, and tannin, are often of great use. In such cases, too, I have prescribed iron with seeming benefit. I must, however, say, that I feel doubtful in the greater number of cases whether this form of flux be not due rather to the colon than to the ilia.

Where the solid matter is pale, fetid, and consists mainly of undigested food, inspissated bile may be given with benefit; the stools become less fetid and less frequent under its employment. This is particularly the case in children whose mesenteric glands are diseased. Pepsine also diminishes the fetor of the motions in the best way—namely, by promoting the normal solution of the food, and acting as a direct restorative.

Acid diarrhœa indicates the free employment of chalk.

The use of opiates in diarrhœa must never be made a matter

of routine. As a general rule, I have found them beneficial without consequent harm in cases where there was tenesmus and frequent stools; but where the feces are bulky and copious they appear to impede the natural secretion. Where the stools also are putrid, caution is required in their use. In the diarrhœa which so often accompanies and proves fatal in uræmia, they check the debilitating flux, but they are apt to bring on coma.

In some cases of diarrhœa from chronic mucous flux of the intestines, without ulceration or acute inflammation, I have known horse exercise to be serviceable. I suppose it is the gentle agitation of the abdomen, combined with the air and amusement, that proves of use.

In recommending the recreation of travelling to invalids subject to diarrhœa, you must be very careful of the route you select. The epidemic influence of cholera which has overspread Europe during the present generation, visiting almost every square mile of its surface several times during the last few years, has in many places left behind it a chronic endemic poison. The natives are insensible to it, but few strangers escape becoming affected more or less, according to their idiosyncrasies. Strong persons find it only an inconvenience, but an invalid is put in some danger, and certainly loses all the advantage of the tour. This is especially the case in the mountainous districts of the south of France, the Pyrenees, and Dauphiny, and in the volcanic regions bordering the Rhine, the Eifel and Moselle country, as well as those in the centre of France, the ancient province of Auvergne. All these places are attractive from their picturesque beauties, and therefore it is necessary that travellers should be warned of this evil attendant upon choosing them as the scene of a tour. It must not be supposed that this diarrhœa is solely the result of the foreign modes of cooking. I have known English biscuits and porter, and boiled eggs, adopted as a diet without relief, though of course nothing foreign could have got into them. I believe the cause to be as I have represented it—namely, a poison left endemic since the passage of cholera through the country, but to which the natives have become acclimatized. That it is of late years only that this diarrhœa has been prevalent is

shown both by local report and the omission of all mention of it from the well-known work on "Climate," by Sir James Clark.

One source from which strangers contract this diarrhœa is an evil capable of, and loudly calls for amendment; I refer to the filthy privies in continental inns. A gentleman, eminent in his profession and of good judgment, told me that, during a Pyrenean tour he entirely escaped the diarrhœa which everybody else without exception suffered from, by adhering to a strict rule of never entering one of these disgusting holes, but worshipping Cloacina under the pure light of the stars. Invalids and ladies cannot so well manage this, unless they are rich enough to travel with carriages and servants and locomotive water-closets.

In Italy I have found that the best remedy for the diarrhœa which so often attacks travellers from over-fatigue in summer and autumn, is lemon-juice and the horizontal posture. Lying down for a couple of hours on the back, and drinking two or three glasses of strong lemonade, with very little sugar, generally stops it. If that is not successful, opium must be had recourse to; but it is seldom required in that land of lemons.

CHAPTER VIII.

CONSTIPATION AND COSTIVENESS.

Definitions.—SECTION 1.—CONSTIPATION.—From mechanical obstruction—Nervous exaggeration of the sphincters—Catarrh—Atony of colon—Insoluble articles of diet—Remedies. SECTION 2.—COSTIVENESS.—From deficient excretive life—Quality of stools—Occasionally interchanged with Diarrhœa—What diseases it accompanies—Effect on nervous system—Indications of treatment—Inconveniences of purgatives—What sort of purgatives are to be adopted—Dietary—Water—Watering places—Cautions respecting the use of them—Hydrophathy.

THE words which head this chapter are sometimes employed as synonymous; but I do not wish them so to be understood here. By the former I would imply injury to the health from the quantity of feces retained in the alimentary canal; by the latter a deficiency in the quantity expelled by reason of a deficiency in the quantity formed.

SECTION I.

Constipation.

The expulsive power is relatively or absolutely in default—the feces, normal or abnormal in quality, collect in some part of the bowels, and give proof of that collection by being occasionally passed in considerable quantities at a time. In the stools there are portions drier than the general mass—scybala of various sizes, dark brown or black, and usually with less smell than ordinary feces.

The most complete type of constipation is that which arises from mechanical obstruction, to discuss which however would lead us too far from the plan of this volume. It has not much connection with ordinary causes and effects of indigestion. It is the case I alluded to in describing the expulsive power as “relatively” in default.

It is also relatively in default in cases of hysteria and nervousness which spasmodically contract the sphincter ani and rectum, so that the fecal mass is kept back, and for its due expulsion there would be required a more than ordinary force, which in point of fact is not likely to be forthcoming in such cases.

And not uncommonly a catarrhal state of the upper parts, say of the stomach, will originate a relative deficiency of expulsive power, by enveloping the alimentary mass in a slimy coat, so that to push it on extraordinary peristaltic force is needed.

But the most common case is an absolute deficiency of power presented by a weak state or atony of the colon. This is a state frequent among those who lead a sedentary life, the anæmic, those debilitated by long acute illnesses or confinement to bed, and may be suspected wherever we observe a pale greasy skin and weak limbs. Old people very frequently suffer from it; so frequently, indeed, that a diminished propulsive force in the large intestines may be considered as a normal consequence of advanced age.

Neglect of the natural call to evacuate the bowels also produces this sort of torpidity by too long-continued dilatation, even in young and strong persons.

Where there is an individual tendency to atony of the colon, the tendency is aggravated, and sometimes first made apparent, by certain articles of diet, especially those which contain much insoluble matter. It is a mistake to suppose that these "irritate" the bowels, or pass quickly through them. The reverse is true; and as a general rule, the regular transmission of the mass is in proportion to the completeness of its digestion. No sort of food is so apt to be followed by constipation in atonic persons as that which contains a large amount of matter incapable of being acted upon by the digestive juices, such as skin and gristle, the husks and stones of fruit, and half-cooked vegetables, in which, besides cellulose, there is the equally impracticable substance, unbroken starch. All substances capable of being squeezed into a tough mass, such as puff pastry and new bread, come under the same class of insolubles; and gum and gelatine are liable to the same imputation according to some observers.

The most successful practice in simple constipation is the free use of cold-water enemata, and a long-continued course of

quinine and strychnine. When there are no piles, this may be advantageously combined with the use of aloes. The treatment does not forbid the administration of whatever else may be needful to relieve the disease in which constipation occurs; which disease of course requires to be removed before the local symptom will be free from risk of relapse. It is scarcely necessary to say that nothing will avail if the bad habits which have induced the constipation are persisted in.

Constipation may often be much alleviated by oleaginous articles of diet, such as butter, bacon, &c., being taken with the usual food. This is especially the case with old people, who are apt to be too abstemious in this respect. We should not fail to impress upon them the physiological fact of costiveness being a normal condition of advancing years, and lead our patients to modify their daily expectations according to their age. They must not demand from sexagenarian bowels the same activity that is to be expected from two and twenty. Daily evacuation, which should be the rule in youth, is an excess in an old man, and still more in an old woman. Thrice a week is often enough for even robust persons.

If the constipation arise from impediments to the movements of the bowels upon one another, such as adhesions, scars of old ulcers, compression of the area of the gut, tumors, retroversion of the uterus, and the like, a more soothing treatment should be adopted. Then the enemata should be warmed, and have an ounce of olive oil added to them. If there be local pain, a little opium may be dissolved in the oil, and some leeches applied to the spot corresponding to the seat of pain. Hot fomentations and poultices of fresh laurel leaves also give great relief.

The depending position of the cæcum makes it the commonest seat of fecal collections; and if it is found difficult to fix on any other spot, it is wise to take it for granted that this is the failing one, and direct our local applications accordingly. We should not be satisfied with the one or two very copious stools which will follow these efforts; the treatment must be persevered in until the bowel has recovered its tone, or there will be great risk of relapse.

When there is much flatulence with the constipation, turpentine and rue may with advantage be added to the enemata.

SECTION II.

Costiveness.

In costiveness the absolute quantity of feces is always too small. It is in fact a deficient excretion into the alimentary canal.

That the greatest part of the matters which ought to be thus excreted come from the liver we have not the means of knowing, but the main point, that they are derived from portal blood, we are justified in asserting; so that the solution of the former question is of the less importance. And, at least, that a great deal of the color of feces is due to bile we may know from the phenomena attendant on obstructed gall-ducts.

But even when there is complete occlusion of the communication between the liver and intestines, the feces by no means consist entirely of undigested food: there is in them a great proportion of a yellowish-gray granular matter which appears also in the healthy state, and still makes up the bulk of the solid excreta.

In deficiency, therefore, of the excretive powers of the intestines generally (*vulgo* "costiveness" or "biliousness"), there is a different substance retained than is the case when local lesion of the liver or gall-bladder obstructs the passage of bile. There is a partial retention of the whole matters destined for depuration from these quarters, instead of a complete retention of one constituent.

Hence there is not, as happens in mechanical retention of the bile, the well-known stain of jaundice communicated to the blood and skin, nor are the stools clay-colored. But there is a dinginess and darkness of complexion, and the stools are scanty. The skin gets greasy and opaque, the countenance sometimes puffy and bloated, sometimes thin and pale, the lower eyelid especially sallow and discolored. The sebaceous follicles on the *alæ nasi* are stopped up with black matter.

There is seldom any decided emaciation, nor is there always even loss of muscular power; but still there is great sluggishness of body and apathy of mind, and often a miserable want of decision and energy. Digestion is accompanied by a good deal of discomfort and flatulence, but rarely by actual pain, and the

distress does not begin till several hours after eating, so as to be with difficulty referred to any particular meal.

In the least complicated cases of checked intestinal secretion the stools are dark, hard, and dry; but their appearance may be varied by several circumstances.

Sometimes there is an augmented secretion of mucus, and then they are intimately mixed up with it, forming a black, slimy, almost gelatinous mass.

Sometimes, from the appetite not suffering, the patients will eat largely, and then there appears irregularly from time to time a quantity of fetid, semi-digested food, constituting a sort of diarrhoea accompanied with pain and colic. And this diarrhoea will often be the occasion of your patient's first coming to you, so that you might be deceived into a false impression of the case.

The congestion of the portal vessels in the upper part of the alimentary canal is often followed by the same state in the lower, and thus piles are formed, which add much to the general distress.

Costiveness is a common accompaniment of anæmia, chlorosis, and debility in both males and females of diseased hearts—especially where the muscle is dilated rather than hypertrophied, of contracted liver, and, in short, of anything which makes the abdominal circulation sluggish. Sometimes it is found in cases of pulmonary tuberculosis, but hardly ever in patients under middle age. In old age it may, like constipation, be considered the normal state of the abdominal viscera. All those pulmonary cases in which I have seen it last long enough to be a marked feature have been examples of senile phthisis. It is often the first and most characteristic phenomenon of that change of system which takes place in females after the cessation of the catamenia. The stools get gradually more and more scanty as the uterine secretion diminishes, as the pulse grows feebler, as the feet and hands are more liable to get cold. There is evidently lessened vitality throughout the whole body.

No persons more frequently suffer from costiveness and its attendant "biliousness" (as the dingy appearance of the skin is named) than old Indians. Their sedentary life and high feeding are partly chargeable with their liability. But in addition to

this, the endemic diseases of the country are often the exciting cause. I have distinctly traced the commencement of a costive habit of bowels to an attack of dysenteric fever brought on by malaria. So that the Anglo-Indian who suffers in this way must not be always accused of previous excess.

One end of this state of things, if left unchecked, is gradual progress from bad to worse. The decrease of destructive assimilation loads the tissues with effete matter, unless for the purposes of life, and a constant source of general discomfort. This impedes the constructive assimilation of food as well—growth is arrested, the blood is not renewed, and hence progressive anæmia, weakness, want of nervous and muscular power, and possibly in the end the degeneration of one or more of the viscera, and death from that cause.

A very striking attendant on the loss of destructive assimilation, is the depression of spirits; melancholy is so named from the dark, scanty stools, which were observed by the Greeks to be associated with it. It appears to me to be an almost universal rule in disease that the general discomfort is proportioned to the arrest of this vital process, and I am inclined to attribute it to the influence on the nerves of general sensation of effete matter which is retained. In all maladies, both acute and chronic, may be observed the truth of this law. Mark the ushering in of a fever: the malaise is excessive; there are pains in the back, in the head and the limbs, or a sense of what the patients graphically call "all overishness;" but when they get worse, and destruction begins—when the effete matter passes off as urea and increases the specific gravity of the urine—then no aggravation of local symptoms, however much it may alarm their physician, and make his prognosis graver, prevents the general feeling of relief: Or watch a case of consumption: the deposit of tubercle may be insignificant, and is at all events in its first stage; yet the patient is despairing of recovery. Why? Because the skin is sluggish, the bowels costive, the urine of low specific gravity; because, in short, there is retention of effete matter in the system. But let this patient's tubercles soften, let there be night-sweats, copious expectoration, diarrhoea—everything that prophesies ill—and who so full of hope as the sufferer himself? Morbid states where destruction is in excess are the

most fatal, but those where retention preponderates are invariably the most distressing.

Costiveness must be regarded as a disorder of the whole system, and not of the intestinal canal alone. The only effectual remedies are those that are advised under this conviction.

The objects of treatment must be: first, to relieve the body of the immediate presence of effete matter; and, secondly, to prevent artificially its reaccumulation till such time as a complete renewal of the tissues has taken place. Then the body ought to be able to take care of itself, and a cure may be said to have been performed. The attention to local disorders, arising from the successful study of morbid anatomy, has too much made us forget this main object of all medical advice—the replacement of morbid tissue by healthy. “*Renew my age*,” was the chief earthly blessing prayed for by the inspired prophet; and physiology teaches us it should be the motto of the rational physician; for if he omits to rebuild the healthy, his care for the destruction of the unhealthy is all thrown away.

Purgatives, then, may very fairly begin the treatment; for the immediate relief they give to the feelings of discomfort is great. But let not that relief be set down to the mere “clearing out of the bowels;” it is the cleansing of the blood which is the real object of the remedy, and the real cause of the relief. An inspection of what comes away shows it has been newly formed; it is fresh bile and other natural constituents of recent feces, not of those which have rested long in the canal.

Nothing is easier than thus with a vigorous blue-pill* and black draught, to drive away, as with a charm, the patient’s discomforts; and he is ready enough to cry out that no more medicine is wanted. But what is the consequence of leaving off treatment? The renewal of the blood and tissues not having had time to regain its original activity—there not being enough new-made blood to carry on vigorous life the effete materials again collect, and the disease takes a fresh starting-point. Again and again the coarse expedient is called for, and at last fails to effect its object of giving relief.

To avoid this evil consequence it is best to give no quickly-acting complete purgatives which directly deplete the abdominal plethora by serous exudation; but rather such as cause a

gradual increase in the solid matter of the stools. Aloes and rhubarb are the best of these; and I find it also beneficial to combine with them resins which act as a tonic to the surface of the mucous membrane, and prevent the exudation of serum and mucus. Four grains of aloes-and-myrrh pill, every night, will in a week produce all the good effect of strong purgation; and it will produce the good permanently instead of merely for a time.

All accessory food that has the property of arresting destruction must be left off. Wine, beer, tea, and coffee, must, on this account, be excluded from the dietary; and milk, cocoa, whey, soda-water, Seltzer-water, &c., substituted for them.

Perhaps it is on account of their temporary arrest of destructive assimilation, that general tonics, such as cinchona and quinine, rarely agree well in those cases. I find it better to give pure bitters, such as oak-bark, quassia, and gentian, which seem to act chiefly on the mucous membrane. Their use is to increase the appetite; and, when that object is attained, I leave them off; or, if it is attained without them, I do not begin.

Water is a very accessible remedy, and certainly a very rational one, when the destructive assimilation is deficient. The conclusive experiments of Dr. Böcker and of Dr. Falck,¹ show the increase of all interstitial metamorphosis by this agent to be in close proportion to the quantity taken, within certain bounds; and all who have heard or read of the agreeable sensations experienced by patients during the water cure, cannot doubt its power of removing morbid accumulations of effete matter in the tissues. In this lies his strength; for, as Dr. Böcker observed, "the demand for new tissues, as expressed in the sensation of hunger, keeps pace exactly with the extent of the metamorphosis." And if this demand is rightly supplied, the result must be a complete renewal of the body.

The testimony of experience to the use of water as a remedial agent, is shown in the patronage bestowed from the earliest times upon numerous springs whose saline constituents are

¹ See "Digestion and its Derangements," p. 217; and "Zeitschrift der K. K. Gesellschaft der Aertze zu Wien," April, 1854; and Vierordt's "Archiv," i. p. 150, 1853.

even less abundant than those of ordinary drinking water. Pfeffers, historically famous for freeing Martin Luther of his demon-haunted hypochondriasis, is still the resort of the invalid. It is situated in a most gloomy hole; and the copious hot stream that boils out of the rock is almost chemically pure. So that really the pure nymph of the fountain, innocent of salt, should have the whole credit. The same may be said of the well-known Gastein and Wildbad, the crowded Baden, imperial Plombières, of the French Aix, and our own long-frequented Buxton; for, practically speaking, the influence of the saline particles they contain must be reckoned for nothing. It is certainly nothing as compared with the effects of moderate doses of water in Dr. Böcker's experiments.

As physiologists we cannot be surprised at the benefit derived from the simple expedient of drinking water beyond the demands of thirst, in all diseases of arrested metamorphosis. Taken several times a day between meals it is a most efficient remedy. Warm hip-baths are also of great use, and can be borne even from the first by those reduced to extreme anæmia and lifelessness. Afterwards, the cold sponge-bath, preceded and followed by friction to the skin, is a most active promoter of life in the skin and capillaries. The raising the specific gravity of the water by the addition of salt prevents the chill which fresh water is apt to impart. So that even persons with cold hands and feet, and very sluggish circulation indicated by weak heart and pulses, can bear to be sponged with sea-water or brine.

Alkalies and neutral salts have the same action on the moulting of effete tissues that water has. Hence the repute of many really strong mineral wells. But care is needed lest the same result should follow their use which is threatened by the unguarded use of purgatives. In cases where there is arrest of metamorphosis without organic change in any of the viscera, I find that the weaker the spring the better for the patient.

While pulling down an old house, we must remember to be building up the new. Let full supplies of albuminous material be continuously kept up in such form as the absorbents love. Let milk, mutton, and bread be the staple diet, with the smallest quantity of anything else that human weakness will submit to.

If the patient be one of strong mind, the best and bravest thing is for him to carry out advice himself. He will then have gained a victory, not only over the flesh, but over the spirit. But if he is no Stoic, and cannot attain to the dignity of being his own jailer, we need not be afraid of sending him to a hydropathic hotel. A little pressure will induce the owners of these houses to carry out rational directions, and the situations of most of them are well chosen for the advantages of air and amusement.

Medical men sometimes fear that in sending patients to water-cure establishments they may be abetting quackery. In my opinion scientific hydropathy, the renewal of the body by water and food, the increase of growth secondary to the increase of moulting, is very far from quackery. It is not an underhand mode of doing nothing, but a *bonâ fide* use of a powerful tool. And therefore a contrary effect than what has been feared would follow; for the very fact of medical men using the treatment as remedial, would show that science ranked it as a genuine physical power; and that, consequently, it is capable of doing as much harm as it does good; in fact, that, like all medical treatment, it needs as much prudence to prescribe it rightly as the most powerful agent in the pharmacopœia. Its being thus adopted by regular practitioners would soon remove it out of the hands of advertisers, who discredit their really valuable wares by attributing to them impossible powers.

CHAPTER IX.

NERVOUS DISEASES CONNECTED WITH INDIGESTION.

Sick-headache.—Hemicrania.—Cutaneous eruptions and derangements.—Loss of control over the thoughts.—Vertigo.—Epilepsy.—Stomach cough.—Anæsthesia and Paralysis.—Atrophy of muscles.

THE most common morbid affection of the nervous system arising from imperfect digestion is sick-headache. By a kind of physical law of retaliation, it usually is found accompanying those cases where the chronic condition of the stomach has itself been promoted by misuse or overuse of the nervous energy. The landlord seldom disturbs the tenant, till the latter has shown himself to be a ruinous one.

CASE CCVIII.—Rev. T. S— has been an occasional patient of mine since 1860, when he was 45 years old, a confirmed bachelor contented with his lot and quite disposed to a rational enjoyment of life. He had had gout in early manhood, and lived temperately by rule to avoid a recurrence. But he had an anxious, easily worried mind, and the occasion of his coming to consult me was the occurrence as often as twice a month of intense headaches, lasting several days. They occupied the whole head, obscured the sight, and rendered him unfit for his clerical duties during the paroxysms. I found that each attack was preceded by gastric symptoms, nausea, vomiting, and complete anorexia. A holiday trip to the seaside, when the cares of the parish were forgotten in boating, sketching, riding, and society, entirely relieved them and kept them off for many weeks afterwards. After each attack he was used to have pain in the anus and urethra, and pain on passing urine, which was acid, and deposited copious clouds of lithates on standing.

A long-continued course of non-purgative doses of taraxacum, the habitual use of potash-water as a drink at dinner, and some occasional short courses of quinine, have made Mr. S— a much stronger and heartier man, and relieved him from the dominion of his headaches. It is possible too that he takes the world easier as he gets older, and being convinced of the evil consequences of worry, avoids it more.

Sorry should I be to advocate selfishness, yet truly it has a reward in this life, by preventing the stomach being disturbed

by the business of others. In such cases as the above one cannot avoid seeing that the path of events is first the arrest of the gastric digestion by the accumulating influence of overthought on the stomach, and by this latter organ retaliating on the brain so as to disable its functions. The gouty constitution of the patient shows him to have a weak sensitive stomach, easily put off work, and unable at such times to bear its necessary load. The alkaline drink probably promoted the secretion of gastric juice, and the taraxacum the secretion of bile, while the quinine strengthened the whole nervous power and made it less morbidly sensitive.

Another form—

CASE CCIX.—Mrs. James R—, aged 39, came to me in May, 1861. She was married, but childless, though the catamenia were copious and regular. About every fortnight the slightest annoyance or bodily fatigue brought on nausea, loss of appetite, and a throbbing in the temples. This was generally in the evening, and the next morning after a restless night she awoke with an intense headache, so that she could not raise her neck from the pillow. This lasted till next night, and then went away, almost always suddenly, and she found herself quite well without any abnormal evacuation. I gave her steel wine after food, and the intervals of the headache seemed to grow longer; but I only saw her twice afterwards, and do not know if she were entirely cured.

CASE CCX.—Miss H—, a red-faced dairymaid-like woman of 40, had thrown upon her the charge of a large inn in a market-town, where she was kept going all day among farmers and troublesome barmaids in consequence of the difficulty I find in curing her father of rheumatic gout, so as to enable him to take his share. She could get on very fairly, were it not for attacks of sickness and fluttering at the epigastrium, accompanied or followed by intense headaches at night, so severe as to waken her up out of sleep with pain. Otherwise the bodily functions were healthily performed.

She came to me April 19th, 1861, and I gave her iodide of potassium, and tincture of sesquichloride of iron.

I saw her again on May 6th, when she said her head was much better since the last prescription, but that her legs were swelled. On inspection, this proved to be due to lumps of *Erythema nodosum*. I then gave her citrate of quinine and iron. She went on with this some weeks, and was quite well as long as she took it; but on leaving it off her headaches, &c. relapsed, and she came up to London again about them. So I desired her to take sesquioxide of iron with her daily food as long as the untoward exertion of mind and body, to which she was exposed, lasted. This seems to have been effectual.

I have cited this second case for the sake of noticing the connection of *Erythema nodosum* with gastric derangement. It is so connected mostly in cases where the nervous system suffers. Thus we shall find that hysterical women are subject to that cutaneous affection, especially when the hysteria is due to the stomach.

The headache is not uncommonly hemicranic, as in the ensuing case.

CASE CCXI.—James C— has been a frequent patient of mine since early in 1861, when he was a widower of 60 years of age. Thirty years previously he had rheumatic fever and inflammation of the heart, the remains of which are discernible in an irregular pulse, a sharpish beat in the heart, and a systolic murmur. He had an appointment affording him the blessing of regular occupation, but latterly he had found himself growing unequal to the mental calls made upon him. Any unusual exertion brought on sick-headaches, beginning with dizziness and oppression at the vertex, but usually fixing on one side or the other, and ending with vomiting.

This was invariably the case if he went too long without food. Very often a headache would begin before breakfast, but if he could manage to eat his usual meal it would go off.

Sometimes in the intervals of the headache he was much troubled with nettlerash.

I had him leeches at the back of the neck, and I afterwards gave him citrate of quinine and iron; but what I found did most good, was the advice to be never as much as four hours without food. He convinced himself by experience this was the best treatment.

In the autumn he took it into his head to marry, and that brought back a relapse of headaches. But a return to his former treatment took them away, and he is still able to go on with his occupation—at least he was so able when I last saw him in the spring of 1866.

Remark the nettlerash, a near relation of *Erythema nodosum*, and affecting the same habits. I feel sure both these cutaneous disorders originate in the stomach, and are propagated to the surface by a sensitive nervous system; so that I think it not unfair to include instances of them in this chapter.

CASE CCXII.—Miss C. R—, aged 35 or so, has been a patient of mine the last few months for nettlerash, which for the last six years has made her mornings miserable to her, coming on in her legs directly she puts them out of her warm bed. She had tried all sorts of treatment in vain; nothing seemed to do her any good. What makes her worse is being worried, and getting wet through when riding.

I have given her soda, liquor ammoniæ, &c., without any apparent effect; but what really seems to afford the greatest relief is leaving off all alcoholic liquids, tea, and fruit.

CASE CCXIII.—R. V. E—, aged 50, a commercial man, came to me in February, 1850, with a peculiar itching papular eruption. Observing that it ran in straight lines, and was only in the front parts of the body commanded by the hands, I questioned further, and found that it only appeared when scratched, and, in fact, in the morning assumed the form of nettlerash. He confessed that eating pickles and drinking hard beer used to bring on nettlerash, but that he had for some time carefully avoided all acids. The only unnecessary that I could detect among his "non-naturals" was the use of tobacco. He allowed that strong shag, in which he indulged, certainly did somewhat upset his stomach and make his hand shake.

Leaving off smoking at night, and using only light cheroots by day, cured him, with the help of a little liquor ammoniæ.

A morbid condition somewhat closely allied to nettlerash, and still more dependent on the nervous system, is flushing of the face and bosom in dyspeptic persons. In minor degrees it is very commonly seen in healthy persons, but sometimes it is bad enough to come to a physician about.

CASE CCXIV.—Mrs. R—, aged 56, came to me in June, 1866, complaining that for the last half-dozen years—in fact, since the cessation of the catamenia—she had suffered from flushings of the face at irregular times, accompanied by palpitations of the heart, so severe that she thought that organ must be organically diseased. On examination, I found it healthy in all respects.

On inquiry, I elicited that she suffered excessively from intestinal flatulence, especially of an evening, and not uncommonly had heartburn at night, if she ate pastry or took much sugar in her tea.

When she came to me she had been latterly much worse than usual, and this I traced to annoyance about a love difficulty of her favorite son.

A month's course of quinine and strychnine dissipated gradually the inconveniences she suffered.

A difficulty of fixing the thoughts, a sort of ἀνομία or mental helplessness, has been already several times incidentally alluded to as a frequent accompaniment of indigestion. The feeling usually comes over the subject of it just at the very times when it is most inconvenient; and it has this difference from hysteria, that the more control is tried to be exercised upon it, the worse it grows.

CASE CCXV.—A tutor of a large and rising college at Oxford, aged 26, came to me in March, 1861, complaining of the supervention of nervousness, and a tendency to lose the recollection of where he is during divine service in chapel—a circumstance most particularly annoying to him from his having been recently appointed a chaplain. He had always been free from any excesses in wine, tobacco, women, or secret lust; but he read very hard for his degree and fellowship, and took a good deal of beer at dinner. He did not acknowledge to any indigestion affecting the stomach; but on inquiry it appeared that he had latterly had that peculiar looseness of bowels and fetor of stools which proceeds from imperfect solution of food, and in the evening not unfrequently was harassed with a glugging sound in the bowels. He sometimes perceived black specks floating before his eyes previous to the occurrence of the faintness.

I gave him quinine and strychnine, and advised his playing at rackets instead of taking dull constitutional walks. A fortnight afterwards he came to report himself as much better.

The following patient made a quaint play of words describing the connection of the brain and the stomach, which may serve as a *memoria technica* to recall the fact.

CASE CCXVI.—Mr. H—, a railway traffic manager of 40, came to me in September, 1862, complaining that for seven years he had suffered from the frequent occurrence of very fetid stools, unformed and pultaceous, passed usually in the morning on first rising with a little griping. What most annoyed him was that at these times he experienced great difficulty in transacting business requiring attention; the amount of fetor in the stools was an inverse measure of the mental powers; as he expressed it, “the addled eggs in the motions addled the brain.”

He was used to dine in the middle of the day, and, I think, derived some benefit from my advice to him to postpone the heavy meal till evening. Ipecacuanha and opium also seemed of use to him.

Functional disturbances of the brain are often complained of when the indigestion takes the form of intestinal flatulence.

CASE CCXVII.—Mrs. P—, a stout lady of 52, first came to me in May, 1858. She had lost her husband three years previously, just at the period of the cessation of the catamenia, and since that time had suffered from indigestion in various forms. Latterly she had been much alarmed by the occurrence of frequent attacks of giddiness; and her son, a medical man, thought these might be due to diseased heart. I found these attacks of giddiness were always coincident with the rolling of wind about in the bowels, that they were relieved when it passed away, and were also relieved by a strong purgative, though they came on worse again after its action.

The administration of valerian and charcoal always does this patient good, but I have not seen her lately.

This very frequent degree of giddiness has been explained as a sort of drunkenness, caused by the absorption of alcohol evolved by the fermentation of sugar in the alimentary canal.

But there are several reasons against that explanation. First, in producing alcohol capable of intoxicating an adult, say five or six ounces at least, a bulk of carbonic acid would be formed enough to burst the bowels all to bits. Whereas in fact they are dilated only to the extent of a few cubic inches.

Again, when we see that fermentation has been going on in the stomach, as in certain catarrhal conditions of the organ with the tendency to parasitic growth mentioned in a former chapter, we do not find as a rule any remarkable giddiness complained of.

Again, the breath is not scented with alcohol, as it probably would be were much alcohol absorbed.

Again, the symptoms are not at all like those of drunkenness.

In respect to the last observation, it is true that inexperienced persons, such as the estimable lady last quoted, may sometimes tell their physician that they feel, when giddy, as if they had been "taking too much" (alcohol); but the more habitual devotee knows the difference of the two sensations, and draws a broad line between them.

CASE CCXVIII.—Herr V. J—, aged 30, a musician and teacher of music, came to me in June, 1866, complaining of a peculiar kind of giddiness, which would seize him at all sorts of inconvenient times, and quite disqualified him for the exercise of his profession. He would, in going through the streets in a hurry to keep an appointment with a pupil, suddenly become so giddy and blinded that he tumbled against passengers, and was forced to catch hold of neighboring railings for support. Vast dusky globes of mysterious gloom rolled before his eyes; he lost sight of the ground before him, so that a billowy gulf yawned under his feet, and he swayed helplessly on the brink. It was a continual renewal of the punishment of the company of Korah. "Haven't these symptoms some connection with your indulging in the gifts of Bacchus as well as singing their praises?" "No, indeed—no one knows better than I do, I am sorry to say, the effects of taking too much; but this is quite different; it is nothing like either being screwed or *devil's trembles*."¹ He said his belly became blown out with excessive flatulence. If he could explode, all was well; but if not, then the above-mentioned symptoms supervened. Sometimes, however, vomiting would relieve him; and if he had a succession of

¹ The reader will identify by its initials the scientific name of this disease.

the attacks, a stout drench would bring temporary alleviation. He had consequently taken various and much purgative medicine, but felt sure the total effect was deleterious.

He is still under treatment: quinine and strychnine and shower-baths seem to do a little good; but his constitution is so broken by debauchery that he is a bad subject to test remedies upon.

Sometimes the connection of these paroxysms of vertigo with sick-headache is more decidedly marked.

CASE CCXIX.—N—, aged 26, a melancholy, weather-beaten young man, first consulted me June 12th, 1866. He had been educated as a sculptor, but had lived a roving life, had made an expedition into the central wilds of Australia, and otherwise knocked about the world a good deal. In the forests he had been subjected of course to great privations, supporting existence for some time mainly on tea and tobacco; and seemingly in consequence of that the veins of his legs and thighs had grown varicose. He wished on this account to forsake the plastic art and take to painting, as requiring less standing, and giving wider scope for inventive genius, of which he has a fair share. He had from boyhood been subject to sick-headaches, and had been used to be purged for them. The purgatives seemed to relieve immediate discomforts; but he thought the attacks were thereby aggravated, as they had become latterly more and more severe and frequent; and they were now accompanied by such giddiness that he was unable to stand or to employ his mind at all. Bright globes rolled before his eyes, and any attempt to rise brought on nausea like sea-sickness. This was occurring every ten days at least, and he was so evidently an invalid, that a marriage he was on the point of contracting was objected to by the intended father-in-law on the score of his ill-health.

The purgatives had made his bowels very irregular and costive.

I gave him first four grains of aloes and myrrh pill with $\frac{1}{10}$ th of a grain of hydrochlorate of strychnia nightly, and 3ij of ammoniated tincture of valerian thrice a day. After a fortnight, during which he was free from vertigines, the pill was diminished to two and a half grains of the first ingredient and $\frac{1}{4}$ th of a grain of the latter. The valerian was exchanged for quinine.

I last saw him at the end of July. He had had but one slight attack of vertigo; he had been able to leave off the pills, as the bowels were spontaneously opened by solid feces daily after breakfast. I recommended him now to go to a good surgeon and have his legs attended to.

It will be seen that in such-like cases I am disposed to attribute the costiveness to the disease, rather than the disease to the costiveness. I believe strong purgatives to be highly injurious, and those only permissible which increase the tone of the alimentary canal.

Another form of cerebro-spinal disorder dependent on faulty digestion is the epileptic fit.

CASE CCXX.—Late one night in June, 1854, I was summoned to see a patient of the late Mr. Tegart, Miss W—, aged 13, whom I found in a violent epileptic fit. The closeness of the sleeping nursery showing a careless, unphysiological management, I suspected corresponding neglect in the dietetic discipline as well. I accordingly administered a stout purge, and the next day was shown a chamber utensil full of hard lumps of feces, mixed with half-digested fruit and other rubbish. The patient had no more epileptic fits.

A somewhat similar case to this is quoted in page 64 (CASE XLI), where the indigestion of an unaccustomed amount of adipose aliment induced a single attack of epilepsy not repeated, at least not repeated during eight months which have elapsed since I wrote out that history.

As acute morbid conditions of the alimentary canal promote acute epilepsy, so chronic morbid conditions promote chronic epilepsy, that is to say, epilepsy of a milder but more confirmed character.

CASE CCXXI.—In November, 1863, Dr. Wallace, of Parsonstown, sent to consult me Mr. James E—. It appeared that he had become subject to attacks of sometimes partial, sometimes complete, loss of sensibility, preceded and accompanied by a cramp in the arms and twitching of the face. Observation of the stools elicited the fact that they frequently contained mucus. A tonic pill of myrrh, aloes, turpentine, and henbane, stayed this formation of mucus. Coincident herewith there was a marked improvement in the nervous symptoms. I then prescribed quinine and strychnine, but have no further note as yet.

In the last case the formation of mucus would seem to have been in the lower bowels: in the next there is recorded the symptom which I have taken to intimate the collection of mucus in the stomach.¹

CASE CCXXII.—Benjamin M—, aged about 40, first came to me October 23d, 1858. A letter he brought from his medical man described him as subject to confirmed epilepsy for two years. Several times a week he got giddy, was unable to stand, sometimes lost his senses, sometimes was convulsed, but rarely bit his tongue. After the paroxysms he always felt tired, and usually went to sleep. He had always been temperate in eating, drinking, sleeping.

¹ See page 157.

and matrimonial matters, and could assign no cause for his epilepsy. On examination, I found tenderness on pressure at the pit of the stomach, and the patient said that he felt as if a weight were laid on that part, especially during wet and cold weather.

To restrain the secretion of mucus, I ordered him a quarter of a grain of nitrate of silver night and morning, and some bismuth and sesquioxide of iron twice a day. But the most important part of the prescription was as follows:—"Avoid beer, pastry, fruit, sugar, tea, and coffee. In place of the latter, take milk and soda-water, with stale bread or biscuit, for breakfast. At dinner eat once-cooked plain meat, stale bread, and green vegetables."

I saw him again November 18th, 1858; no improvement had resulted, and all I could do was to encourage him to persevere.

I did not receive another visit till July 5th, 1860, when he reported that he hardly ever had any attacks of giddiness; indeed, never except after violent exercise. To my surprise, and at first consternation, he said he had been continuing the nitrate of silver, with occasional intermissions of a week or so, up to that time. No discoloration of the skin had occurred, however. I then gave him some citrate of quinine and iron, which a letter from his wife reports set him in strong health in a few weeks.

He had no more fits till 1862, when over-attention to business seems to have deranged his digestion, and he had a few slight epileptic attacks while dressing in the morning. I advised a recurrence to his former dietary and to the last-prescribed medicine.

In the spring of 1866 he called to report that he had got quite well, and kept so up to that date by dint of adhering to a strict dietary, grounded on the one I had written out in 1858.

In the next case such favorable results do not follow, though the flatulent distension of the bowels before the fits seems to associate the epilepsy with deranged digestion. Perhaps the disease is too long ingrained for cure.

CASE CCXXIII.—A. G.—, aged about 40, first came to me in January, 1851, after having been a patient of the late Dr. W. F. Chambers for five years for epileptic attacks, occurring about every fortnight or three weeks. He had been taking sulphate of zinc (gr. iij bis die), and I continued the prescription.

I saw him from time to time during the next two years, and found that the fits were invariably preceded by flatulence and distension of the bowels, and immediately announced by perspirations and pale urine. By the end of 1852 the fits had become less violent, and assumed a regular periodicity, coming on every eighth night between ten minutes before and ten minutes after twelve. I do not think he made any more attempts to get well.

I am afraid one cannot in such cases find much fault with a despairing patient; so few are the instances in which an epilepsy which has assumed a regular periodicity, at the same time

that it grows milder, ever is cured. It is very possible there may have been structural brain disease, and that the indigestion was only the motive cause of the epilepsy.

Minor degrees of reflex manifestations of nervous action assume more physiological forms. Thus we have very commonly what is known as "stomach cough," that is to say, cough without any bronchial secretion or other morbid condition of the lungs, and connected with, aggravated by, and yielding simultaneously with, catarrhal relaxation of the mucous coats of the stomach. Usually we may infer this gastric derangement from the symptoms; sometimes we have the confirmation (afforded in the case I will quote as an illustration) of a similar catarrhal condition appearing at the visible extremity of the alimentary canal.

CASE CCXXIV.—Mr. Henry L—, a manufacturer, aged about 30 when he first consulted me in January, 1861, complained of a constant hacking cough, without expectoration generally, but still aggravated by damp chilly weather, and of pain in the left mammary region. His face was pale and flabby, and he had a tendency to grow fat. The chest was quite healthy so far as could be ascertained by the ear. He got better under the use of quinine, and after a few visits I did not see him again till November, 1863, when he came to me with a recurrence of his former symptoms. He in addition complained that "his chest" (pointing to his epigastrium), "gets stuffy and feels too large." The uvula was much relaxed, and on looking into the throat, it seemed to be redder as you go down deeper. Acting on this hint, I have since accompanied the tonics by gargles of oak-bark and alum, and subsequent attacks have got better the quicker for them. On leaving England, in December, 1864, I commended him to another doctor; but he has just been to see me (October, 1866), saying that he had been quite well till now, when exposure in the country during this wet autumn has brought on an unusually bad attack. I never saw his throat so red, and he says he can feel his œsophagus all the way down to the epigastrium.

These cases are often mistaken for incipient consumption.

Another form of the influence of gastric derangement upon the nervous system is the production of morbid anæsthesia. As I remarked at the beginning of this chapter, the most frequent instances are found amongst those who have already made the nervous system susceptible of disease by overstraining it.

CASE CCXXV.—An American speculator, aged 48, was sent to me in June, 1866, by Dr. Forsyth Meigs, of Philadelphia. He had lost a fortune of

ten thousand a year by the civil war, so that he had to begin life over again—an ordeal not so severe in the United States as in England, but still an ordeal everywhere; he had worked energetically to recover his position; he had thrown himself into the turbulent, rather than the quiet joys of life; and he had also gone through certain matrimonial difficulties not unscathed. In August, 1864, he was taken with vomiting and loss of appetite, general debility, deficient sleep, and occasional flatulence. These ordinary digestive derangements were the only trouble till the end of September in the same year, when he found gradually creeping over his hands and feet a peculiar sensation of numbness; not what is commonly called "pins and needles," but a bluntness of perception, especially in the finger-tips, so that he did not know when he was touching a small object, unless he saw it; and he often tripped from not detecting a small impediment in walking. On resuming matrimonial privileges, after an interval of abstinence on account of his health, he found that emission occurred immediately on entrance, or even before entrance was effected. His head had been bald since the age of twenty, but in general respect he is a young-looking man. The specific gravity of the urine before breakfast is 1.025, after breakfast 1.015. Under the use of nutritious diet, abstinence from alcohol, and from over-much anxiety in business, and of *nuxvomica* and *quinia*, prescribed by Dr. Meigs, his digestion had strengthened and the sensation was returning by degrees to his extremities. I thought he could not do better than take a course of the same drugs for ten days in each month, and follow strictly the plan of life laid down for him by his first-rate physician. It is proposed that he shall spend a few years in taking his daughter round the chief cities of Europe.

Cases such as this last receive all sorts of names, according to the prevailing theories of the period; which nomenclature does the patient no harm so long as the theory does not influence the treatment. The principal danger is lest he may fall into the hands of a counter-irritator, who should depress the vital powers by making sore places over the spots where he supposes chronic inflammation to exist. Electricity probably does no harm, but it will be observed that recovery is always coincident with an improvement in the digestion, and I think attention to this function is our leading duty; and alone it may be followed by a cure, so that there is no need of additional treatment.

The loss of nervous function in some cases is manifested in the nerves of motion principally, or even solely. We must presume that it depends on the specialities of the nervous system itself in each individual which portion of it be affected, and that the influence of the alimentary canal is general; otherwise we should be able to map out certain tracts as ruled over by certain

viscera, and not find motor and sensory fibres indifferently injured by the stomach.

CASE COXXVI.—Colonel B—, aged 43, came to me on the 30th of July, 1866, complaining of loss of power in the legs. He has always had a “weak stomach,” feeling a weight at the epigastrium if he takes liberties with his diet, or is exposed to a damp cold. In the summer of 1865 his stomach difficulties were particularly bad, and then he began to notice what he called a “fidgetiness” of the legs, inducing him to kick and stretch them about. Then he found he was less and less able to walk, and then there was pain in the legs, felt especially after any exertion. A mile was the utmost he was able to walk when I saw him. He had been galvanized and had tried a variety of medical treatments, without any advantage that he could discover; the only improvement he could ever notice, was when he was in the bracing air of Scotland. On this hint I sent him thither with a prescription for quinine and strychnine. I heard from him in August that he digested better and walked better, but that the pains were bad in the legs at night. I added therefore to his mixture four grains per dose of iodide of potassium.

In this instance the sensory tracts do not seem to be injured at all. And the paralysis is not sufficiently complete to cause atrophy from deficient use of the muscles. Indeed, in gastric paralysis (if I may so call it) I have never seen the loss of power so complete as to deprive the muscle of that amount of motion which is conducive to its welfare. The patients can always get about a little, are willing to do so, and very often disposed to exert themselves too much.

This is an important point in the treatment; for if what I have remarked is true universally, we shall be doing harm by following the common practice in telling the patients to employ and exercise the muscles as much as possible; we ought rather to impress upon them the necessity of avoiding such an amount of motion as nature warns us against by the sensation of consequent fatigue.

When atrophy of the muscles has any connection with derangement of the digestive organs, it is usually to be traced to overwork rather than to underwork. Of this I will quote an instance which I have previously made use of in the later editions of my Clinical Lectures.

CASE COXXVII.—(*Clinical, St. Mary's, June 13th, 1863.*) Nathaniel B— is a top-sawyer by trade, aged 45, and was always a hearty fellow, able to do a good day's work, till ten months ago; when, after violent exertion in

turning over a mass of timber, he got what he calls "a wrench" in the pit of the stomach, and "has never been the same man since." The appetite failed, and therewith the strength; the muscles wasted, and the whole body grew emaciated. The loss of appetite then became entire, and then increased to an utter loathing of food. He went into Guy's Hospital three months ago, but left apparently dissatisfied and ungrateful. On gaining admission to St. Mary's, May 22d, he seemed much cast down, expecting never to get any better. He was able to walk about, and the chief loss of power seemed in the shoulder-muscles, the deltoid and biceps; and when he tried to "put up" the latter, that is to throw into it the contractile nervous force, it felt quite soft, without any of the corky elasticity which distinguishes a sawyer's arm. He is the father of thirteen children, but since the commencement of his present illness he has entirely lost virile power. He states himself to be a perfectly sober moderate man, and has a good character on that score from his employer.

It is scarcely necessary to say that the epigastrium and hepatic region were carefully examined for evidence of cancerous degeneration, and none was found. The lungs also were thoroughly auscultated, and nothing abnormal was detected, beyond a suspicion of slight comparative dulness in the right apex. He had not suffered from habitual cough or had any diarrhoea.

He was at first kept in bed and given milk and beef-tea every two hours, with ten grains of Boudault's pepsine powders three times daily. In a few days his excessive nausea and lowness of spirits had abated, and he was ordered six grains of quinine and three drachms of cod-liver oil daily in addition. In a few days more he was tried with half a mutton-chop, digested it well, and on the 6th of June was able to take our whole ordinary diet, a pint of milk, and a pint of beef-tea, and a pint of porter. On the 12th (yesterday) he was so much better, that I thought it was scarcely justifiable to let him occupy a place in the hospital any longer, and I trust he will be able to get on as an out-patient.

As he was confined to bed at first, it was not convenient for some days to put him in the scales; but on May the 24th we found his weight 8 stone 5½ pounds; on the 30th, 8 stone 7½ pounds; on June 6th, 8 stone 10 pounds; on June 12th, 8 stone 10½ pounds; his height being 5 feet 6 inches.

The only day on which he did not take pepsine was May 29th, when our stock was accidentally exhausted. He then complained of pain at the epigastrium, and attributed that to the omission of his powders.

It is most probable that the "wrench," or sudden pain, which this patient felt in his stomach, followed by loss of appetite, was not the real commencement of a morbid condition, but rather "the last straw which broke the horse's back;" for there is no gastric lesion which comes on in this sudden way. And the proneness to muscular atrophy may have long existed in all likelihood; but, for such time as the stomach was able to go on

supplying enough nutriment to compensate the extreme waste of the violent exertions, no harm happened. No sooner does its debilitated condition fall below a certain point, than atrophy suddenly is exhibited, and proceeds at an alarming pace.

Now, had this sawyer been a gentleman in easy circumstances, the excessive waste would not have been habitual, and he would not have had muscular atrophy—unless, indeed, injudicious friends had urged him to exert himself for the good of his health, or brain-work had occupied the hostile post which is held by body-work in the case before us.

My deduction as to the treatment of nervous disorders connected with indigestion is that they are rarely curable by means directed to act on the nervous system, seldom require the use of these means, and are best managed by attention to the digestion.

ANALYSIS.

THE cases in this volume form a sort of skeleton, which I have articulated together by argument, and tried to make muscularly active by practical observations. A list of them, indexed according to the subjects they profess to illustrate, will serve as a memorandum, just as the dry bones recall succinctly the structure of the animal frame to the anatomical student.

CHAPTER II.—*Indigestion of various Foods.*

§ 1. *Of starch.*

- CASE I.—From starvation and sorrow. Flatulence.
CASE II.—From extreme temperance. Flatulence.
CASE III.—From loss of appetite induced by psychical causes. Flatulence.
CASE IV.—From organic degeneration of the kidneys. Flatulence.
CASE V.—From organic degeneration of the kidneys. Diarrhœa.
CASE VI.—From loss of nerve-power induced by bodily exertion. Pain from vegetable food.
CASE VII.—From bodily exertion. Acute attack of flatulence and vomiting.
CASE VIII.—From the same. Flatulence and immediate diarrhœa.
CASE IX.—The same. Diarrhœa later.
CASE X.—The same, recurring habitually after moderate exertion in old age. Flatulence.
CASE XI.—Chronic condition following one bodily imprudence. Flatulence and nervousness.
CASE XII.—From overstrained attention of mind in a nervous man. Flatulence and insomnia.
CASE XIII.—Chronic condition following one mental shock. Flatulence, impotence, red nose.
CASE XIV.—Chronic condition from continued anxiety. Flatulence, emaciation, weight after meals.

CASE XV.—From bronchial catarrh. Flatulence, spasmodic pain, costiveness.

CASE XVI.—From an attack of epidemic cholera. Flatulence, heartburn, waterbrash.

CASE XVII.—From the depressing effects of disease not connected with the stomach—rheumatic fever. Pain at the epigastrium after food.

CASE XVIII.—After child-bed. Flatulence and pain in abdomen.

CASE XIX.—From climatic influences. Weight at epigastrium and vertigo, flatulence and acidity.

CASE XX.—From climatic influences. Flatulence, hysteria.

CASE XXI.—The deleterious climatic influences are changes, rather than continued depressants.

CASE XXII.—The dependence of indigestion on change of weather a diagnostic sign.

CASE XXIII.—Influence of locality. Flatulence, nausea, acidity, waterbrash, emaciation, when in a malarious district, and not elsewhere.

CASE XXIV.—From soft sea-air.

CASE XXV.—After tropical dysentery. Chronic flatulence. Remarks on digestion in hot countries.

CASE XXVI.—Effects on flatulence of abstinence from sugar.

§ 2. *Indigestion of albumen and fibrin.*

CASE XXVII.—In debility induced by acute fevers. Pain in epigastrium after meat.

CASE XXVIII.—In aphthous condition of mucous membrane. Pain, nausea, and diarrhoea after meat.

CASE XXIX.—In phthisis pulmonalis. Weight at epigastrium after animal food, diarrhoea, emaciation, all relieved by quinine and iron.

CASE XXX.—Fatal consequence of a mental shock in a consumptive who could not digest meat.

CASE XXXI.—From œsophageal lesion. Vomiting. Alleviation by anæsthetics.

CASE XXXII.—It is the form rather than the chemical constitution which makes meat difficult of digestion in œsophageal cases. Fish easier digested from its friability.

CASE XXXIII.—Yet in some stomach cases even the softest animal food is especially rejected.

§ 3. *Indigestion of fat.*

CASE XXXIV.—Consumption fatal from loss of power of assimilating fat, though the amount of tubercle moderate.

CASE XXXV.—Consumption, though advanced, relieved by great power of assimilating fat.

CASE XXXVI.—Moderate amount of consumption and moderate amount of assimilating power balancing one another.

CASE XXXVII.—Renewal of fat assimilation overcoming consumption.

CASE XXXVIII.—Strumous dyspepsia consists in non-assimilation of fat.

CASE XXXIX.—Disgust to fat joined to defective assimilation. The disease induced by starvation in childhood.

CASE XL.—Importance of fat at the period of puberty in girls.

CASE XLI.—The disease induced by over-exertion of intellect.

CASE XLII.—Cutaneous symptoms of non-assimilation of fat.

§ 4. *Digestion of water.*

CASE XLIII.—Osmosis of water through membranes defective from the watery condition of the blood in induced anæmia.

CASE XLIV.—Osmosis defective from retarded blood-stream in diseased heart.

CASE XLV.—Osmosis defective from retarded blood-stream through emphysematous lungs.

CASE XLVI.—Illustration of the variations in the specific gravity and alkalinity of the urine through the normal absorption of fluid.

§ 5. *Treatment of indigestion based on article of food not digested.*

CASE XLVII.—It must not consist in entire omission of the indigested article from the dietary. Scorbutus from medical advice to leave off vegetables.

CASE XLVIII.—Purpura from insufficient vegetable diet in a hard-working man.

CASE XLIX.—Illness from omitting meat. Pain at epigastrium, costiveness and debility. Amenorrhœa a stomach disease.

HINTS ON DIETETICS.

§ 6. *Treatment based on general pathological condition of indigestion, as used in foregoing cases. Principally quinine and strychnine.*

CHAPTER III.—*Habits of Social Life leading to Indigestion.*

(The treatment is based on their removal.)

§ 1. *Eating too little.*

CASE L.—Illness from omitting meat. Emaciation, flatulence, hysteria, irregular pulse.

CASE LI.—Illness from omitting meat. Debility, flatulence, palpitation of heart, intermittent pulse.

CASE LII.—Illness from religious asceticism. Mental depression.

§ 2. *Eating too much.*

CASE LIII.—Eating too much not necessarily a vice. Symptoms in a robust woman of active intellect.

CASE LIV.—Symptoms in a woman of weaker intellect. Gluttony. Obesity. Hysteria.

CASE LV.—Melancholy in a man from over-eating and not caring.

CASE LVI.—Caution against overloading the stomach when the heart is diseased afforded by the case of an old man who dropped down dead.

CASE LVII.—Excess in eating producing sleeplessness, and so emaciation.

CASE LVIII.—Excess in eating producing corpulence in spite of indigestion.

§ 3. *Sedentary habits.*

CASE LIX.—Sedentary life not productive of indigestion if proper dietetic habits be adopted.

CASE LX.—Violent exercise after eating causes it.

CASE LXI.—Even moderate exercise in elderly persons.

§ 4. *Tight lacing.*

CASE LXII.—Indigestion in a growing girl from not getting a new pair of stays to fit her growth.

CASE LXIII.—Chronic vomiting in an adult woman from bandaging herself too tight to preserve her form after child-bearing.

§ 5. *Sexual excesses.*

They do not appear to produce indigestion, though accused of doing so.

CASE LXIV.—But indigestion produces a perversion of the sexual instinct.

§ 6. *Compression of epigastrium by shoemakers.*

CASE LXV.—Effects in an incipient stage. Pain in epigastrium on pressure and soon after food.

CASE LXVI.—A more advanced stage. Pain in epigastrium increased by pressure and immediately after food, eructation, emaciation, debility.

CASE LXVII.—Deformity of thoracic parietes.

CASE LXVIII.—Final blow to the stomach. Ulceration and hæmatemesis.

§ 7. *Solitude.*

CASE LXIX.—Flatulence and confusion of intellect when dining alone, however temperately.

CASE LXX.—Vomiting from solitary meals.

§ 8. *Intellectual exertion.*

CASE LXXI.—Nocturnal flatulence, nightmare, and seminal emissions from unwonted exertion of a moderate intellect.

CASE LXXII.—This does not happen in tough-headed men; usually some cause they do not like to own is the origin of their indigestion.

§ 9. *Want of employment.*

CASE LXXIII.—Concentration of the mind upon itself in blind people exaggerates internal sensation.

CASE LXXIV.—The same happens in uneducated persons deprived of accustomed active employment.

CASE LXXV.—May be prevented by simple occupation.

CASE LXXVI.—Association with invalids deleterious.

§ 10. *Abuse of purgatives.*

CASE LXXVII.—The habit may be commenced from mere imitation.

CASE LXXVIII.—Gradual omission of purgative habits in those willing to confess their folly.

CASE LXXIX.—Physiological error of medical practitioners.

§ 11. *Abuse of alcohol.*

CASE LXXX.—Symptoms in obese persons (male).

CASE LXXXI.—Ditto (female).

CASE LXXXII.—Occasional effect of a sudden amelioration of habits in elderly persons.

CASE LXXXIII.—Extreme effects of chronic dram-drinking on, the stomach.

§ 12. *Tobacco.*

CASE LXXXIV.—This drug not usually injurious to digestion when smoked.

CASE LXXXV.—Occasional effects of excess in snuffing.

§ 13. *Tea.*

CASE LXXXVI.—Induction of hysterical dyspepsia.

§ 14. *Opium.*

CASE LXXXVII.—Occasional acute effects in the induction of vomiting.

CASE LXXXVIII.—Chronic effect on the digestion of meat and fat.

CASE LXXXIX.—Ease with which opium may be left off by a manly person.

CHAPTER IV.—*Abdominal Pains.*§ 1. *Heartburn.*

CASE XC.—From sluggish stomach, three hours after meals.

CASE XCI.—Four hours after meals, passing into hunger.

CASE XCII.—This last is sometimes represented as pain before food.

CASE XCIII.—Induced by small quantities of food.

CASE XCIV.—From over-sensitiveness of stomach, treated by local anæsthetics. Treatment by alkalies.

§ 2. *Acidity.*

CASE XCV.—Explaining what acidity is.

§ 3. *Waterbrash.*

CASE XCVI.—Exhibits the principal features of the disorder and the treatment.

CASE XCVII.—Marked line of distinction between the ejection of the contents of the stomach and of the œsophagus, showing Waterbrash to be a disease of the latter.

CASE XCVIII.—Patient's suggestion of a name for the disease—"watery mouth."

CASES XCIX and C.—Waterbrash from organic obstruction.

CASE CI.—Association of waterbrash and vomiting.

CASE CII.—Waterbrash of oatmeal-eaters.

CASE CIII.—Waterbrash from exposure to heat.

CASE CIV.—With exudation of blood.

CASE CV.—With ulcer.

CASE CVI.—Caused by lead poison.

CASE CVII.—One of the sequelæ of cholera.

CASE CVIII.—Also of dysentery.

CASE CIX.—Associated with pulmonary consumption.

CASE CX.—Connection with amenorrhœa.

CASES CXI, CXII, CXIII.—Though most common in the prime of life, it is not unknown among the aged.

CASE CXIV.—And children may also suffer from it.

TREATMENT.

§ 4. *Spasm.*

CASES CXV, CXVI, CXVII, CXVIII.—Specimens of acute stomach-ache from insoluble food taken at irregular hours.

CASE CXIX.—Occurring the morning after an indigestible dinner.

CASE CXX.—Accompanied by muscular cramps.

CASE CXXI.—Abdominal neuralgia from malarious poison.

‡ 5. *Gripes evacuating the stomach.*

CASE CXXII.—In pulmonary consumption, very bad symptom, but not necessarily fatal.

CASE CXXIII.—With chronic lesion and healthy lungs not so bad.

CASE CXXIV.—The relaxation of the bowels in these cases not always immediate.

CASE CXXV.—Details of the origin of the disease in a non-tuberculous subject.

‡ 6. *Weight at the stomach* (sometimes called “oppression,” “distension,” and “tightness at the chest.”)

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